Fire 02-18
Extra Copy

ENVIRONMENTAL ASSESSMENT

CONSTRUCTION OF A FIRE/CRASH RESCUE STATION

NIAGARA FALLS AIR RESERVE STATION, NEW YORK

914TH AIRLIFT WING
MISSION SUPPORT GROUP/ENVIRONMENTAL
2405 Franklin Drive
Niagara Falls, New York 14304-5063

MARCH 2006

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
MAR 2006		**00-00-2006 to 00-00-2006**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Environmental Assessment: Construction of Fire/Crash Rescue Station at Niagra Falls Air Reserve Station, New York	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **engineering-environmental Management, Inc. (e2M Inc), 3949 Pender Dr,Fairfax,VA,22030**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The purpose of the Proposed Action is to meet the requirements of Air Force Handbook (AFH) 32-1084, Civil Engineering, Facility Requirements, which states that an installation the size of Niagara Falls ARS should have a Fire/Crash Rescue Station of at least 30,340 square feet (ff) to enable personnel to perform activities necessary to meet USAF mission and emergency response concerns. The Jnstallation's current 15,488 ft2 Fire Station is too small for the number of full-time employees. The Fire/Crash Rescue Station must also be located near the AFRC parking ramp, but have an effective standoff distance from other buildings. The Proposed Action is to build a new Fire/Crash Rescue Station using the architectural design and engineering drawings from an existing Fire/Crash Rescue Station. The proposed location is between Buildings 820 and 827. Under the No Action Alternative, Niagara Falls ARS personnel would continue to use existing faciliti~s. There would be no change from existing conditions at the Jnstallation. This alternative would not address USAF mission and emergency response at Niagara Falls ARS. This Environmental Assessment (EA) has been prepared to evaluate the Proposed Action and the No Action Alternative. Resources that are considered in the impact analysis include land use, air quality, ? safety, geological resources, and water resources. The EA will be made available to the public upon completion.

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**92**	

Abbreviations and Acronyms

$\mu g/m^3$	micrograms per cubic meter
107 ARW	107th Air Refueling Wing
914 AW	914th Airlift Wing
AFH	Air Force Handbook
AFI	Air Force Instruction
AFPD	Air Force Policy Directive
AFRC	Air Force Reserve Command
APE	Area of Potential Effect
AQCR	Air Quality Control Region
ARFF	aircraft rescue and firefighting
ARS	Air Reserve Station
C&D	construction and demolition
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CEV	914 Environmental Division
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
DOD	Department of Defense
DODI	Department of Defense Instruction
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
ft^2	square feet
HQ	Headquarters
IAP	International Airport
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
MEPS	Military Entrance Processing Station
mg/m^3	milligrams per cubic meter
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIAQCR	Niagara Falls Intrastate Air Quality Control Region
NFTA	Niagara Frontier Transportation Authority
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NSR	New Source Review
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
$PM_{10/2.5}$	Particulate matter particles equal to or less than 10/2.5 microns
POL	Petroleum, Oil, and Lubricants
ppm	parts per million
PSD	Prevention of Significant Deterioration
SAF/IE	Assistant Secretary, USAF, Installation, Environment, Logistics
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPDES	State Pollutant Discharge Elimination System
SWPPP	Storm Water Pollution Prevention Plan
tpy	tons per year
TSP	total suspended particulates
U.S.C.	U.S. Code
UFC	United Facilities Code
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOCs	volatile organic compounds

FINDING OF NO SIGNIFICANT IMPACT (FONSI) AND FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

PROPOSED CONSTRUCTION OF A FIRE/CRASH RESCUE STATION AT NIAGARA FALLS AIR RESERVE STATION, NEW YORK

INTRODUCTION

The 914th Airlift Wing (914 AW) of the United States Air Force (USAF) proposes to construct a Fire/Crash Rescue Station at Niagara Falls Air Reserve Station (ARS), New York. The Proposed Action, alternatives to the Proposed Action, and the No Action Alternative were assessed in an Environmental Assessment (EA).

The 914 AW is an Air Force Reserve Command (AFRC) unit, and is the host unit at Niagara ARS. The 914 AW is assigned eight C-130H aircraft which perform a diversity of roles, including airdrop of supplies, airlift support, aero-medical missions, and natural disaster relief missions. The major tenant at Niagara Falls ARS is the 107th Air Refueling Wing (107 ARW) of the New York Air National Guard (NYANG). The 107 ARW is assigned nine KC-135R tanker aircraft, and their primary mission is to provide in-flight refueling for military aircraft operations worldwide.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The 914 AW has identified the need for a larger, centrally located Fire/Crash Rescue Station at Niagara Falls ARS. The Fire/Crash Rescue Station must meet the requirements of Air Force Handbook (AFH) 32-1084, *Civil Engineering, Facility Requirements*, which states that installations the size of Niagara Falls ARS should have a Fire/Crash Rescue Station of at least 30,340 square feet (ft^2) to enable personnel to perform activities necessary to meet USAF mission and emergency response. The Installation's current Fire Station is old (built in 1982) and too small (15,488 ft^2) to house equipment and accommodate the number of full-time employees. The current Fire Station has undergone five additions/renovations to add a kitchen, bunkhouse, and training facilities. In addition, the existing Fire Station suffers from maintenance problems, such as poor heating in the newer parts of the Fire Station, and does not have a fire sprinkler system.

The Fire/Crash Rescue Station must be in a central location where the Fire Department can support their customers (AFRC, NYANG, and Niagara Frontier Transportation Authority [NFTA]), be near the AFRC parking ramp, and easily accessible to the buildings on the Installation, but have an effective standoff distance from other buildings. Due to the current Fire/Crash Rescue Station's location on the Installation, fire station personnel cannot meet the response time requirement as stated in Department of Defense Instruction (DODI) 6055.6, *DOD Fire and Emergency Services Program*. Per Section 7, *Response Times*, personnel "shall be capable of responding to any incident on the runways or overruns within 3 minutes for an unannounced emergency." Under the most ideal conditions, fire/crash rescue personnel cannot meet this requirement from the current location. Based on the primary criteria of meeting response time requirements to structural and aircraft fires, and life safety requests, Niagara Falls ARS determined the Proposed Action to be the best available central location.

DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action consists of constructing a 30,343 ft^2 Fire/Crash Rescue Station (the proposed construction area includes a calculated safety factor of approximately ten percent), a parking lot for 73 vehicles and approximately 21,800 ft^2 of new driveway/access road. Additionally, in accordance with Unified Facilities Code (UFC) 4-010-01, the building must be situated at an effective standoff distance from other buildings. Given these restrictions, the preferred location for the Fire/Crash Rescue Station is east of Building 820, south of Building 827, and west of the AFRC Ramp.

Construction the Fire/Crash Rescue Station, under the Proposed Action, would impact two drainage ditches and an unnamed tributary that flows south to Cayuga Creek that are "waters of the United States." The Proposed Action would require relocating approximately 175 feet of an unnamed tributary; replacing approximately 475 feet of a drainage ditch at the northern portion of the site with concrete storm water conduits; and redefining, re-grading, and stabilizing a drainage ditch at the southern portion of the site where the ditch meets the unnamed tributary.

SUMMARY OF ALTERNATIVES TO THE PROPOSED ACTION

No Action Alternative. Under the No Action Alternative, there would be no change from existing conditions at the Installation. The Niagara Falls ARS Fire Department would continue to operate from the existing Fire Station. The No Action Alternative would not meet AFH 32-1084 requirements and would not address USAF mission and emergency response needs at Niagara Falls ARS.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

Analysis performed in the EA addressed potential effects on air quality, noise, land use, safety, geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste. Analysis of the Proposed Action indicates that the affected environment would not be significantly impacted by proceeding with the proposed Fire/Crash Rescue Station construction activities. However, a small portion of the Proposed Action would be located within a 100-year floodplain.

Floodplains. Based on an April 2005 floodplain survey performed by the Buffalo District of the U.S. Army Corps of Engineers (USACE), the Proposed Action would take place in the 100-year floodplain. A 1999 special report, *Summary of Hydrology for the Niagara Falls Air Reserve Station,* by the Buffalo District of the USACE, indicated that development along Cayuga Creek at Niagara Falls ARS only increased runoff by 0.4 percent. The modeling indicated that the Installation has very little impact on peak discharge of Cayuga Creek downstream. Further development at Niagara Falls ARS would not add a significant area of impervious surfaces that would affect downstream water quality. The Proposed Action would impact a small portion of the 100-year floodplain area and construction impacts would be kept as minimal as possible during construction activities. The Fire/Crash Rescue Station and driveway would be constructed above the 100-year floodplain so that operations would not be adversely affected by a 100-year flood. Therefore, the Proposed Action would long-term, minor direct adverse effects on the Installation's 100-year floodplain.

PUBLIC REVIEW AND INTERAGENCY COORDINATION

Based on the provisions set forth in the Proposed Action, all activities were found to comply with the criteria or standards of environmental quality and coordinated with the appropriate Federal, state, and local agencies. Copies of the EA and FONSI/FONPA were mailed to Federal, state, and local agencies. A Notice of Availability for the EA and FONSI/FONPA was published in the *Niagara Gazette* on February 2, 2006.

FINDINGS

Finding of No Significant Impact. Reasonable alternatives were considered. The Proposed Action was found to be the preferred alternative to meet the Installation's purposes and needs. After review of the EA prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), the CEQ regulations, and Environmental Impact Analysis Process (EIAP), 32 Code of Federal Regulations 989, as amended, I have determined that the Proposed Action would not have a significant impact on the quality of the human or natural environment and, therefore, an Environmental Impact Statement (EIS) does not need to be prepared. This decision has been made after taking into account all submitted information, and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of the USAF.

Finding of No Practicable Alternative. Reasonable alternatives were considered, but no other alternative to the Proposed Action meets the safety or operational requirements of the 914 AW. Pursuant to Executive Orders 11988 and 11990 and the authority delegated by Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed Action includes all practicable measures to minimize harm to the environment. This decision has been made after taking into account all submitted information, and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of the USAF.

STEVEN W. ZANDER, Colonel, USAF
The Civil Engineer

31 Mar 06
Date

COVER SHEET
ENVIRONMENTAL ASSESSMENT
CONSTRUCTION OF A FIRE/CRASH RESCUE STATION AT
NIAGARA FALLS AIR RESERVE STATION, NEW YORK

Responsible Agencies: U.S. Air Force (USAF), Air Force Reserve Command (AFRC), and 914th Airlift Wing (914 AW), Niagara Falls Air Reserve Station (ARS), New York.

Affected Location: Niagara Falls ARS, New York.

Proposed Action: Construct a Fire/Crash Rescue Station at Niagara Falls ARS.

Report Designation: Environmental Assessment.

Written comments and inquiries regarding this document should be directed to 914 MSG/CEV, Niagara Falls ARS, 2405 Franklin Drive, Niagara Falls, New York 14304-5063.

Abstract: The purpose of the Proposed Action is to meet the requirements of Air Force Handbook (AFH) 32-1084, *Civil Engineering, Facility Requirements*, which states that an installation the size of Niagara Falls ARS should have a Fire/Crash Rescue Station of at least 30,340 square feet (ft^2) to enable personnel to perform activities necessary to meet USAF mission and emergency response concerns. The Installation's current 15,488 ft^2 Fire Station is too small for the number of full-time employees. The Fire/Crash Rescue Station must also be located near the AFRC parking ramp, but have an effective standoff distance from other buildings.

The Proposed Action is to build a new Fire/Crash Rescue Station using the architectural design and engineering drawings from an existing Fire/Crash Rescue Station. The proposed location is between Buildings 820 and 827.

Under the No Action Alternative, Niagara Falls ARS personnel would continue to use existing facilities. There would be no change from existing conditions at the Installation. This alternative would not address USAF mission and emergency response at Niagara Falls ARS.

This Environmental Assessment (EA) has been prepared to evaluate the Proposed Action and the No Action Alternative. Resources that are considered in the impact analysis include land use, air quality, safety, geological resources, and water resources. The EA will be made available to the public upon completion.

ENVIRONMENTAL ASSESSMENT

CONSTRUCTION OF A FIRE/CRASH RESCUE STATION AT

NIAGARA FALLS AIR RESERVE STATION, NEW YORK

914TH AIRLIFT WING
MISSION SUPPORT GROUP/ENVIRONMENTAL
2405 Franklin Drive
Niagara Falls, New York 14304-5063

MARCH 2006

ENVIRONMENTAL ASSESSMENT
CONSTRUCTION OF A FIRE/CRASH RESCUE STATION AT
NIAGARA FALLS AIR RESERVE STATION, NEW YORK

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

1. Purpose and Need for Proposed Action

1.1 Background

The 914th Airlift Wing (914 AW) is an Air Force Reserve Command (AFRC) unit and the host unit at Niagara Falls Air Reserve Station (ARS), New York. The 914 AW is assigned eight C-130H aircraft that perform diverse roles, including airdrop of supplies, airlift support, aeromedical missions, and natural disaster relief missions. The major tenant at Niagara Falls ARS is the 107th Air Refueling Wing (107 ARW) of the New York Air National Guard (NYANG). The 107 ARW, assigned nine KC-135R tanker aircraft, primarily provides in-flight refueling for military aircraft operations worldwide. As part of the decisionmaking process, AFRC and the 914 AW are conducting an environmental analysis to determine the potential environmental impacts of constructing a Fire/Crash Rescue Station at Niagara Falls ARS.

This Environmental Assessment (EA) analyzes the Proposed Action, alternatives to the Proposed Action, and the No Action Alternative. If the analyses presented in the EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, a Finding of No Significant Impact (FONSI) would be prepared. A FONSI briefly presents reasons why a Proposed Action would not have a significant effect on the human environment and why an Environmental Impact Statement (EIS) is unnecessary. If significant environmental issues are identified that cannot be mitigated to insignificance, an EIS would be accomplished, or the Proposed Action would be abandoned and no action will be taken. In addition, if the EA finds that the Proposed Action would impact a floodplain, a Finding of No Practical Alternative (FONPA) would be prepared.

1.2 Purpose and Need for the Proposed Action

The 914 AW has identified the need for a larger, more centrally located Fire/Crash Rescue Station at Niagara Falls ARS. The Fire/Crash Rescue Station must meet the requirements of Air Force Handbook (AFH) 32-1084, Civil Engineering, Facility Requirements, which states that installations the size of Niagara Falls ARS should have a Fire/Crash Rescue Station of at least 30,340 square feet (ft^2) to enable personnel to perform activities necessary to meet U.S. Air Force (USAF) mission and emergency response. The Installation's current Fire Station is old (built in 1982) and too small (15,488 ft^2) to house equipment and accommodate the number of full-time employees. The Fire Chief's vehicle is stored outside unprotected from the weather. Mission-essential equipment cannot be stored in the vehicle due to extreme cold weather conditions. Other mission essential vehicles are stored at various locations on the Installation, which then requires additional time to mobilize to the equipment. These factors cause a delayed response time. The current Fire Station has undergone five additions/renovations to add a kitchen, bunkhouse, and training facilities. In addition, the existing Fire Station suffers from maintenance problems, such as poor heating in the newer parts of the Fire Station, and does not have a fire sprinkler system. The Fire/Crash Rescue Station must also be in a central location where the Fire Department can support their customers (AFRC, NYANG, and Niagara Frontier Transportation Authority [NFTA]), be near the AFRC parking ramp, and easily accessible to the buildings on the Installation, but have an effective standoff distance from other buildings.

The Fire Department must also meet the response time requirement as stated in Department of Defense Instruction (DODI) 6055.6, *DOD Fire and Emergency Services Program,* October 10, 2000. Per Section 7, *Response Times*, personnel "shall be capable of responding to any incident on the runways or overruns within 3 minutes for an unannounced emergency." Under the most ideal conditions, fire/crash rescue personnel cannot meet this requirement from the current location.

1.3 Location of the Proposed Action

Niagara Falls ARS is in Niagara County in western New York, approximately 6 miles east of the City of Niagara Falls and 20 miles north of the City of Buffalo. Adjacent communities include the towns of Niagara Lewiston, Wheatfield, and the City of Niagara Falls. Figure 1-1 shows the location of Niagara Falls ARS in relation to the surrounding region. Niagara Falls International Airport (IAP) is directly south of and contiguous to the Installation. The boundary between the airport and the Installation coincides with the channel of Cayuga Creek, which flows from east to west, south of the Installation flightline apron. The Installation occupies 985 acres of land. Vehicular access to Niagara Falls ARS is provided through the Main Gate, off Lockport Road.

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] Section 4321-4347) is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. NEPA mandated a structured approach to environmental impact analysis that requires Federal agencies to use an interdisciplinary and systematic approach in their decisionmaking process. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decisions.

The process for implementing NEPA is codified in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The Council on Environmental Quality (CEQ) was established under NEPA to implement and oversee Federal policy in this process. To this end, the CEQ regulations specify that an EA be prepared to briefly provide evidence and analysis for determining whether to prepare an EIS or a FONSI, aid in an agency's compliance with NEPA when an EIS is unnecessary, and facilitate preparation of an EIS when one is necessary.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is *The Environmental Impact Analysis Process (EIAP)*, 32 CFR Part 989, as amended.

1.4.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

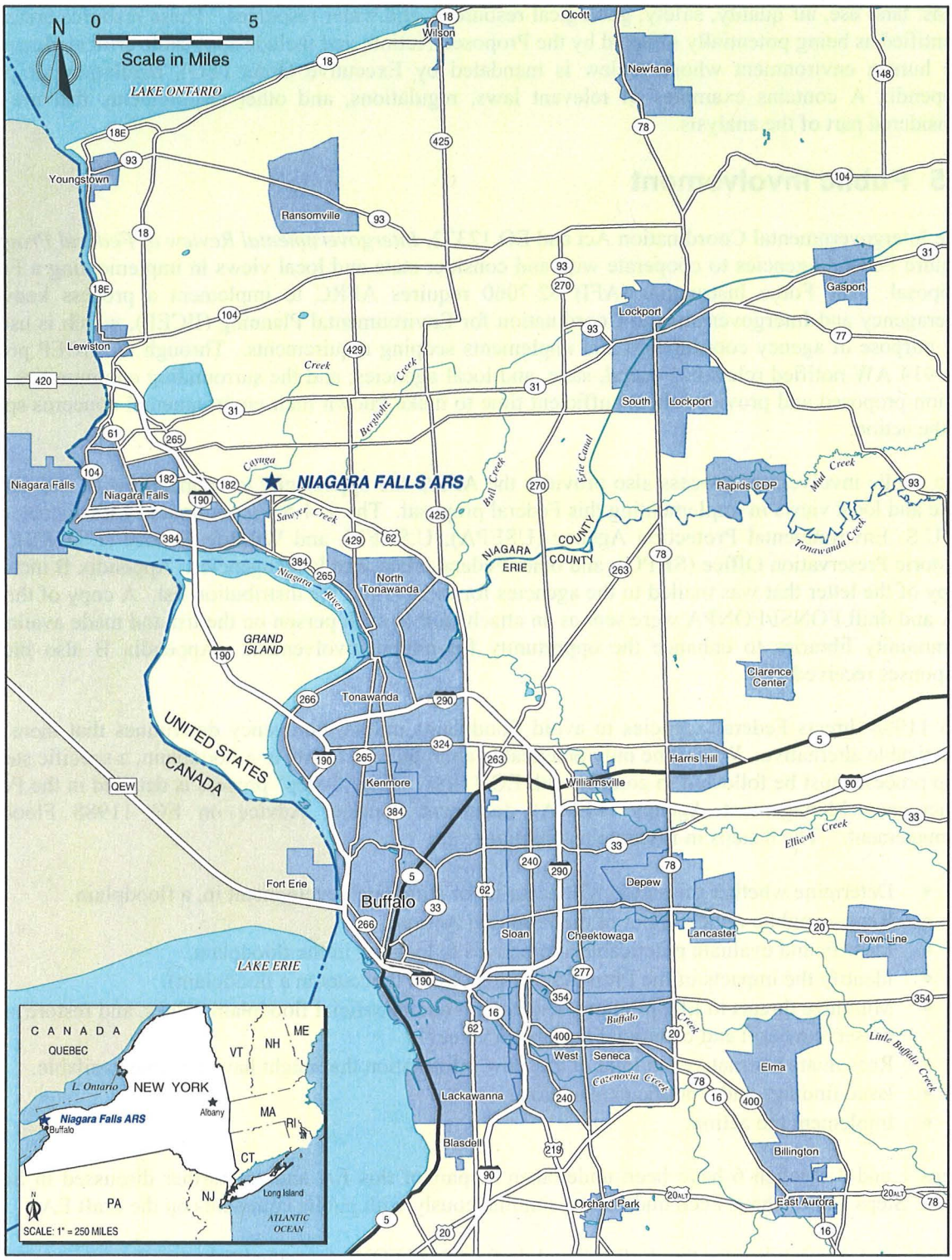

Figure 1-1. Niagara Falls ARS Vicinity Map

This EA examines potential effects of the Proposed Action and No Action Alternative on five resource areas: land use, air quality, safety, geological resources, and water resources. These resource areas were identified as being potentially affected by the Proposed Action, and include applicable critical elements of the human environment whose review is mandated by Executive Order (EO), regulation, or policy. Appendix A contains examples of relevant laws, regulations, and other requirements that are often considered part of the analysis.

1.5 Public Involvement

The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs,* require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060 requires AFRC to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), which is used for the purpose of agency coordination and implements scoping requirements. Through the IICEP process, the 914 AW notified relevant Federal, state, and local agencies; and the surrounding communities of the action proposed and provided them sufficient time to make known their environmental concerns specific to the action.

The public involvement process also provides the AFRC the opportunity to cooperate with and consider state and local views in implementing this Federal proposal. The 914 AW coordinated with agencies such as U.S. Environmental Protection Agency (USEPA); U.S. Fish and Wildlife Service (USFWS); State Historic Preservation Office (SHPO); and other Federal, state, and local agencies. Appendix B includes a copy of the letter that was mailed to the agencies for the EA and the distribution list. A copy of the draft EA and draft FONSI/FONPA were sent as an attachment to each person on the list and made available in community libraries to enhance the opportunity for public involvement. Appendix B also includes responses received.

EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a specific step-by-step process must be followed to comply with EO 11988. This "8-step" process is detailed in the Federal Emergency Management Agency (FEMA) document "Further Advice on EO 11988 Floodplain Management." The 8 steps in floodplain compliance are

- Determine whether the action will occur in, or stimulate development in, a floodplain.
- Receive public review/input of the Proposed Action.
- Identify and evaluate practicable alternatives to locating in the floodplain.
- Identify the impacts of the Proposed Action (when it occurs in a floodplain).
- Minimize threats to life, property, and natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values.
- Reevaluate alternatives in light of any new information that might have become available.
- Issue findings and a public explanation.
- Implement the action.

Steps 1 and 3 through 6 have been undertaken as part of this EA and are further discussed in Section 4.5.2. Steps 2 and 7 have been undertaken simultaneously with public comments on the draft EA.

A Notice of Availability for the draft EA and draft FONSI/FONPA was published in the *Niagara Gazette* on February 2, 2006. This was done to solicit comments on the Proposed Action and involve the local community in the decisionmaking process. Upon receipt, public comments provided to the 914 AW have been incorporated into the analysis and included in Appendix B of the EA.

1.6 Introduction to the Organization of this Document

This EA is organized into seven sections. Section 1 contains background information on Niagara Falls ARS, the purpose of and need for the Proposed Action, the location of the Proposed Action, a summary of environmental compliance requirements, a description of interagency coordination and community involvement, and an introduction to the organization of the EA. Section 2 provides a detailed description of the Proposed Action, a description of the No Action Alternative, a description of the decision to be made, and identification of the preferred alternative. Section 3 contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action or No Action Alternative. Section 4 presents an analysis of the environmental consequences. Section 5 includes an analysis of the potential cumulative impacts on Niagara Falls ARS. Section 6 lists the preparers of the document. Section 7 lists the sources of information used in the preparation of the document. Appendix A includes examples of relevant laws, regulations, and other requirements that are often considered as part of the EA. Appendix B includes a copy of the letter mailed to the agencies for this action, the distribution list, and agency and public comments. Appendix C contains the results of the air conformity analysis, including details of the emissions factors, calculations, and estimates of construction-related emissions.

THIS PAGE INTENTIONALLY LEFT BLANK

2. Description of Proposed Action and Alternatives

2.1 Detailed Description of the Proposed Action

The Proposed Action consists of constructing a 30,343 ft^2 Fire/Crash Rescue Station (the proposed construction area includes a calculated safety factor of approximately ten percent), a parking lot for 73 vehicles and approximately 21,800 ft^2 of new driveway/access road. The Fire/Crash Rescue Station must be in a central location to support the Fire Department's customers (AFRC, NYANG, and NFTA), located on the flightline as close to the AFRC ramp as possible. The Fire/Crash Rescue Station should also have a good line-of-sight to the AFRC hanger, and be close to the main section of the Installation because the fire department responds to many more structural fires than airplane fires. Additionally, in accordance with Unified Facilities Code (UFC) 4-010-01, the building must be situated at an effective standoff distance from other buildings.

Given these restrictions, the preferred location for the Fire/Crash Rescue Station is east of Building 820, south of Building 827, and west of the AFRC Ramp (see Figure 2-1). Figure 2-2 presents the site layout for the Proposed Action at the preferred location. Figures 2-3 and 2-4 are photographs of the proposed location of the Fire/Crash Rescue Station. The proposed site would allow Niagara Falls ARS to respond to emergencies with the least interference of parked or moving large framed aircraft. This location has the diversity of meeting both Structural and aircraft rescue and firefighting (ARFF) time constraints as defined in DODI 6055.6, by reducing the ARFF response time to less than two minutes to any incident located on the three active runways or taxiways.

The Fire/Crash Rescue Station would be constructed in accordance with the 1997 USAF Fire Station Design Guide. The facility would be adequately sized and configured to house fire response personnel, firefighting vehicles, and other equipment and personnel to support the Installation's C-130H and KC-135R aircraft. The new facility would consist of an apparatus room, general purpose/day rooms, a training classroom, a kitchen/dining area, sleeping quarters, a physical conditioning room, personnel locker room/space, a watch room, an equipment maintenance area (including breathing apparatus servicing), firefighting agents and operating supply storage, a station office, and space for mobility assets for fire response personnel (see Appendix D for detailed space criteria, as given in AFH 32-1084). Construction would consist of a steel-framed structure on a concrete foundation with slab-on-grade flooring, a brick veneer exterior, a steel-framed gable-type roof, heating and air conditioning equipment, parking, and utilities. All anti-terrorism/force protection requirements would be met.

The Proposed Action would be constructed under a Design/Bid/Build contract, using the design of an existing Fire/Crash Rescue Station at Selfridge Air National Guard Base near Detroit, Michigan. Therefore, the proposed Fire/Crash Rescue Station must be on a site that can accommodate the exact building configuration with little or no modification. Construction would last approximately 12 months.

Construction the Fire/Crash Rescue Station at the preferred location would impact two drainage ditches and an unnamed tributary that flows south to Cayuga Creek that are "waters of the United States." The Proposed Action would require relocating approximately 175 feet of an unnamed tributary; replacing approximately 475 feet of a drainage ditch at the northern portion of the site with concrete storm water conduits; and redefining, regrading and stabilizing a drainage ditch at the southern portion of the site where the ditch meets the unnamed tributary.

The primary constraint with the preferred location is that a small portion of the building and access road might be within the 100- and/or 500-year floodplain. Based on an April 2005 floodplain survey

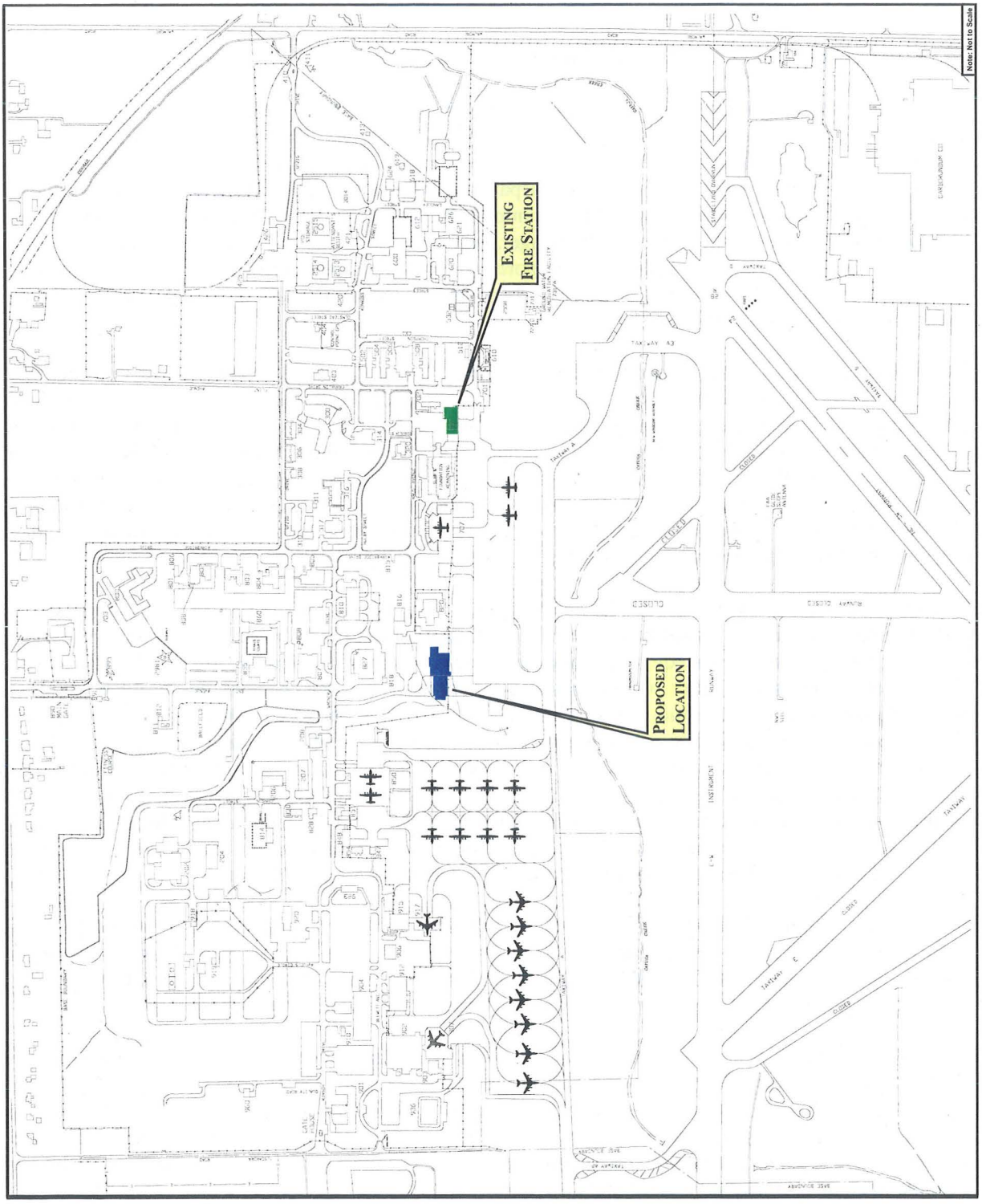

Figure 2-1. Niagara Falls ARS Proposed Action

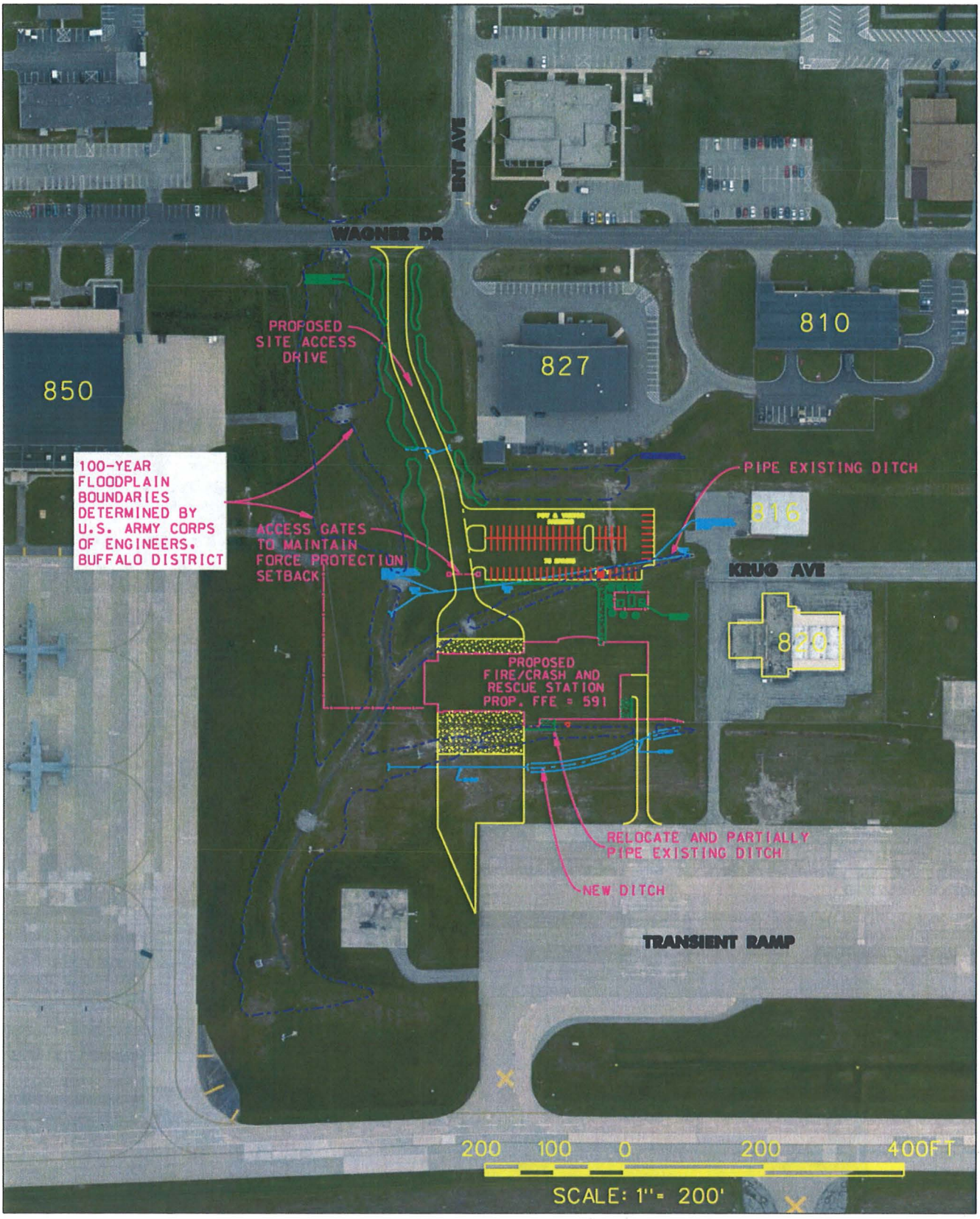

Figure 2-2. Layout of Proposed Action

Figure 2-3. Proposed Location of Fire/Crash Rescue Station, Photograph 1

Figure 2-4. Proposed Location of Fire/Crash Rescue Station, Photograph 2

performed by the Buffalo District of the U.S. Army Corps of Engineers (USACE), for the purposes of this EA, it is assumed that the Proposed Action would take place in the 100-year floodplain. Therefore a FONPA would be required. AFI 32-7064, *Integrated Natural Resources Management*, requires USAF lands to be managed to reduce the risk of flood loss. Construction within a floodplain is restricted unless there are no practical alternatives to such construction. Documentation is required in the form of a FONPA before any action may proceed within a floodplain. In preparing a FONPA, Headquarters (HQ)AFRC must consider the full range of practicable alternatives that will meet justified program requirements, as well as those that are within the legal authority of the USAF, meet technology standards, are cost effective, do not result in unreasonable adverse environmental impacts, and other pertinent factors.

Where applicable, the new facility would be designed to comply with current architectural standards at Niagara Falls ARS. All landscaping would be completed in accordance with Niagara Falls ARS standards, and construction would comply with all applicable fire and safety codes. The Proposed Action would meet all applicable antiterrorism/force protection requirements.

Potable water, sanitary sewer, storm sewer, underground/overhead primary electric, and natural gas utilities are adequate to meet the Proposed Action's utility demands. Construction and demolition (C&D) waste would be the responsibility of the construction contractor(s). All C&D waste generated as part of the Proposed Action would be recycled to the greatest extent practicable. The contractor would transport the remaining C&D waste to an approved landfill.

The proposed project would result in no change in officer, Reserve officer, or enlisted Air Reserve Technician positions; or unit Reserve enlisted authorizations.

2.2 Alternatives

As part of the NEPA process, reasonable alternatives to the Proposed Action must be considered. The development of reasonable alternatives involved discussions with Niagara Falls ARS Installation and tenant personnel to identify the purpose of and need for the Proposed Action, alternative courses of action, designs, locations, and management practices for achieving the purpose and need. Consistent with the intent of NEPA, this screening process focused on identifying a range of reasonable project-specific alternatives and, from that, developing a proposed action that could be implemented in the foreseeable future. Management alternatives deemed infeasible were not analyzed further. For the proposed Fire/Crash Rescue Station, Niagara Falls ARS also considered alternative construction locations and expanding and renovating the existing Fire Station. These alternatives were deemed infeasible and eliminated from further consideration.

Alternative Construction Location. An alternative location considered for the proposed Fire/Crash Rescue Station was next to the current Fire Station, in the area where Building 706 was located and now is a 39,911 ft^2 concrete pad. This location for the Proposed Fire/Crash Rescue Station was assessed in the *Environmental Assessment of Proposed Capital Improvement Program at Niagara Falls International Airport-Air Reserve Station*, February 2004. However, the site is no longer considered a viable alternative because it is not centrally located to meet the response time requirements of DODI 6055.6, and the pre-existing building design would not fit within the site boundaries. To meet the requirements of UFC 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings,* this alternative would require moving Krug Avenue and constructing a new parking lot across Krug Avenue. The intent of the standards described in UFC 4-010-01 is to minimize the possibility of mass casualties in buildings or portions of buildings owned, leased, privatized, or otherwise occupied, managed, or controlled by or for DOD. These standards provide appropriate, implementable, and enforceable measures to establish a level of protection against terrorist attacks for all inhabited DOD buildings where no known threat of terrorist

activity currently exists. This alternative was considered not viable and was not carried forward for detailed review.

Expansion and Renovation of Existing Fire Station. Niagara Falls ARS also considered expanding and renovating the existing Fire Station to meet Installation needs and AFH 32-1084 requirements. The existing Fire Station was built in 1982 and has undergone five additions/renovations to add a kitchen, bunkhouse, and training facilities. This alternative would involve lengthening the bays and adding living quarters to the back (north) or west side of the existing station. This alternative would also entail adding a sprinkler system and a new heating system to the existing station. This location would also require the construction of a new parking lot across Krug Avenue and the relocation of Building 702, Combat Communications. This alternative was eliminated from consideration because it is not centrally located and would not meet the response time requirement as described in DODI 6055.6.

Additional Locations for Considered for Construction. A location that was considered but later eliminated was the area directly north of Building 707, between Buildings 815 and 320. This location was determined to be inadequate since it does not provide direct access to the flightline. Another possible location is near the old Fire Station, south of Building 701. This location was eliminated because of height restrictions, the need to be 125 feet from the transient ramp, and its location within the clear zone. This alternative would require a waiver from HQ AFRC and the Assistant Secretary, USAF, Installation, Environment, Logistics (SAF/IE).

A third location that was considered but eliminated from further consideration was the area west of the 107 ARW parking apron. This area is outside of the Niagara Falls ARS boundary and is currently owned by the NFTA. This location was eliminated because it could not be leased from NFTA within the timeframe required.

2.3 No Action Alternative

Under the No Action Alternative, there would be no change from existing conditions at the Installation. The Niagara Falls ARS Fire Department would continue to operate from the existing Fire Station. The No Action Alternative would not meet AFH 32-1084 requirements and would not address USAF mission and emergency response needs at Niagara Falls ARS.

2.4 Decision to be Made and Identification of Preferred Alternative

The USAF would make one of the following decisions:

- Implement the Proposed Action in the preferred location
- Not implement the Proposed Action (No Action Alternative)

Based on the primary criteria of minimizing the response time to structural and aircraft fires to fewer than 3 minutes, and life safety requests, Niagara Falls ARS determined the Proposed Action to be the best available central location. Therefore, the Preferred Alternative is the implementation of the Proposed Action.

3. Affected Environment

Section 3 describes the environmental resources and conditions most likely to be affected by the proposed project, and serves as a baseline from which to identify and evaluate environmental changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The potential direct and indirect environmental impacts of the Proposed Action and No Action Alternative on the baseline conditions are described in Section 4.0.

In compliance with NEPA, CEQ regulations, and 32 CFR Part 989, as amended, the description of the affected environment focuses on those resources and conditions potentially affected by the Proposed Action. Six aspects of the affected environment that are frequently evaluated in an EA (noise, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste management) would not be affected by the Proposed Action and therefore, are not analyzed in this EA. The following details the basis for such exclusions:

Noise. The noise environment on Niagara Falls ARS is dominated by military aircraft overflights, and the Proposed Action would not introduce new activities that would generate permanent loud or persistent noise. Implementation of the Proposed Action would have minor, temporary direct effects on the noise environment near the project site resulting from the use of heavy equipment during construction activities. However, noise generation would last only for the duration of the construction activities, and would be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (i.e., between 7:00 am and 5:00 pm). Noise produced by construction at the sites would not affect sensitive receptors on or off the Installation. The noise associated with construction activities would be comparatively minor to that associated with military aircraft overflights. Accordingly, the USAF has omitted detailed examination of noise.

Biological Resources. The Proposed Action would not affect biological resources at Niagara Falls ARS. Most of the Installation is urbanized and the original vegetation has been removed or significantly altered by development, construction, landscaping, and other disturbances. Turf grasses and various broadleaf weeds are the dominate vegetation types on Niagara Falls ARS. There have been no observations made of any historically significant or unique native vegetative species occurring on Niagara Falls ARS.

No federally listed endangered, threatened, proposed, or candidate species are known to inhabit Niagara Falls ARS, and there is no critical habitat on the Installation. A 2001 inventory conducted by the USFWS found and confirmed six New York State-listed bird species on the Installation. These include the upland sandpiper *(Bartramia longicauda),* short-eared owl (*Asio flammeus)*, northern harrier (*Circus cyaneus)*, grasshopper sparrow (*Ammodramus savannarum)*, American bittern (*Botaurus lentiginosus)*, and horned lark (*Eremophila alpestris*) (NFARS 2001). The proposed construction of the Fire/Crash Rescue Station would occur on land that is not known to have any of these bird species. There are no wetlands near the proposed project. Any noise effects as a result of construction would be minor and short-term, having a negligible effect, if any, on biological resources. Accordingly, the USAF has omitted detailed examination of biological resources.

Cultural Resources. An Installation-wide Stage 1 archaeological survey was conducted from June to August 1998. The May 7, 2000, report found that none of the historic (modern) artifacts identified were considered to be culturally important. The report also recommended that no further cultural resources investigations were necessary on the Niagara Falls ARS property. Procedures for handling unexpected discoveries of historic properties during construction are outlined in the Cultural Resources Management Plan (AFRC 1996). Contractors that are involved in excavating projects are required to stop work when there is an unanticipated discovery of historic properties and to report the finding to the Cultural Resources Manager of the 914 Environmental Division (CEV).

A survey for Cold War Historic Properties has not been finalized. Projects that involve Cold War Era facilities are reviewed on a case-by-case basis with the New York SHPO. There are eight building identified as being built during the Cold War. Four buildings are greater than 1,000 feet from the Proposed Action. The buildings were built between 1955 and 1965 (No. 800, 914th TAG; No. 803, Base Chapel; No. 804, 70th Aeromedical Evacuation Flight; and No. 808 Electrical Power Station Building. Two buildings (No. 202, Base Civil Engineer, Fire Department and Engine Shop and No. 204, Engine Shop), approximately 500 feet, were built in 1960. Buildings No. 202 and No. 204 were associated with the 35th Missile Defense Squadron. Buildings No. 820 and No. 850 were built between 1955 and 1956. Building No. 820, which is currently being used as munitions storage, is approximately 200 feet from the Proposed Action. Building No. 850 is approximately 600 feet away and is currently used for aircraft maintenance. Buildings 820 and 850 are not associated with an important role relating to the Cold War historic context (NFARS 2005)

For the purpose of this EA, the "Area of Potential Effect" (APE) for cultural resources for the Proposed Action is limited to the construction footprint of each proposed project (see Figure 2-1). Buildings 202, 204, 800, 803, 804, 808, 820, and 850 are outside the APE and there would be no direct impact on historic properties per 36 CFR 800, *Protection of Historic Properties*, from the Proposed Action.

Socioeconomics. The Proposed Action does not involve any activities that would contribute to changes in socioeconomic resources. There would be no change in the number of personnel assigned to Niagara Falls ARS; therefore, there would be no changes in area population or associated changes in demand for housing and services. The proposed construction projects are relatively small and would not affect local employment rates. Accordingly, the USAF has omitted detailed examination of socioeconomics.

Environmental Justice. The Proposed Action does not involve any activities that would affect residences around the Installation or contribute to changes in low-income or minority populations. Accordingly, the USAF has omitted detailed examination of environmental justice.

Infrastructure. Construction of the Fire/Crash Rescue Station might have short-term effects on infrastructure (transportation systems, utilities [electrical power, natural gas, and water supply], solid waste, and sanitary systems. There could be short-term minor direct adverse effects from construction on utilities. Construction could increase consumption slightly, but would be nominal compared to overall usage. Temporary disruption to the utility systems could occur during tie-in to the supply line. The landfill space required at the approved landfill used by the contractor would increase by approximately 155,160 pounds (77.6 tons) over the life of the project.

Although the Proposed Action would be nearly doubling the size of the current Fire Station, it is not a part of the Proposed Action to increase personnel numbers, therefore minimal increases in demand on the infrastructure could occur, but would be negligible in comparison to Installation-wide usage. When possible, energy conservation fixtures would be used. Operations of the Fire/Crash Rescue Station would not generate additional waste from what is currently generated at the existing facility and no effects on solid waste are anticipated. Accordingly, the USAF has omitted further examination of infrastructure.

Hazardous Materials and Waste Management. Specifications for proposed construction and USAF regulations prohibit the use of asbestos containing materials or lead-based paint for new construction. The proposed location of the Fire/Crash Rescue Station is not near any active Environmental Restoration Program Sites. The Proposed Action would not impact the Installation's hazardous waste management program. Construction contractors would be responsible for the disposal of hazardous wastes in accordance with Federal and state laws and regulations. It is anticipated that the quantity of hazardous waste generated from proposed construction activities would be negligible.

No significant impacts from hazardous materials are expected from the proposed construction activities. Products containing hazardous materials would be procured and used during proposed construction activities. Construction equipment contains fuel, lubricating oils, hydraulic fluid and coolants that could be regulated hazardous substances if they spilled or leaked on the construction site. During construction activities, vehicle and equipment operators would take steps to minimize the potential for a release of hazardous substances from all construction equipment. Prior to mobilization to the site, all vehicles and equipment would be inspected to ensure correct and leak-free operation. Construction vehicles and equipment would be inspected daily to ensure that there are no discharges, and maintenance activities would not be conducted at any construction site. Appropriate spill containment material would be kept on site. All fuels and other materials would be contained in the equipment or stored in appropriate containers. All materials would be removed upon completion of construction activities. It is anticipated that the quantity of products containing hazardous materials used during the C&D activities would be minimal and that their use would be of short duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with Federal and state regulations. Accordingly, the USAF has omitted detailed examination of hazardous materials and waste management.

3.1 Land Use

3.1.1 Definition of the Resource

The term "land use" refers to real property classifications that indicate either natural conditions or types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, "labels," and definitions vary among jurisdictions.

Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans, management plans, and zoning regulations. In appropriate cases, the locations and extent of proposed actions need to be evaluated for their potential effects on project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its "permanence."

3.1.2 Existing Conditions

The on- and off-Installation land use information provided below was obtained from the Niagara Falls ARS General Plan (NFARS 1998). The land use plan at Niagara Falls ARS emphasizes the consolidation of similar activities and the promotion of positive functional relationships between land uses. As older facilities are demolished, new buildings should be sited according to the plan. This effort will result in the consolidation of aircraft operations and maintenance functions adjacent to the airfield. See Figure 3-1 for existing land use at Niagara Falls ARS.

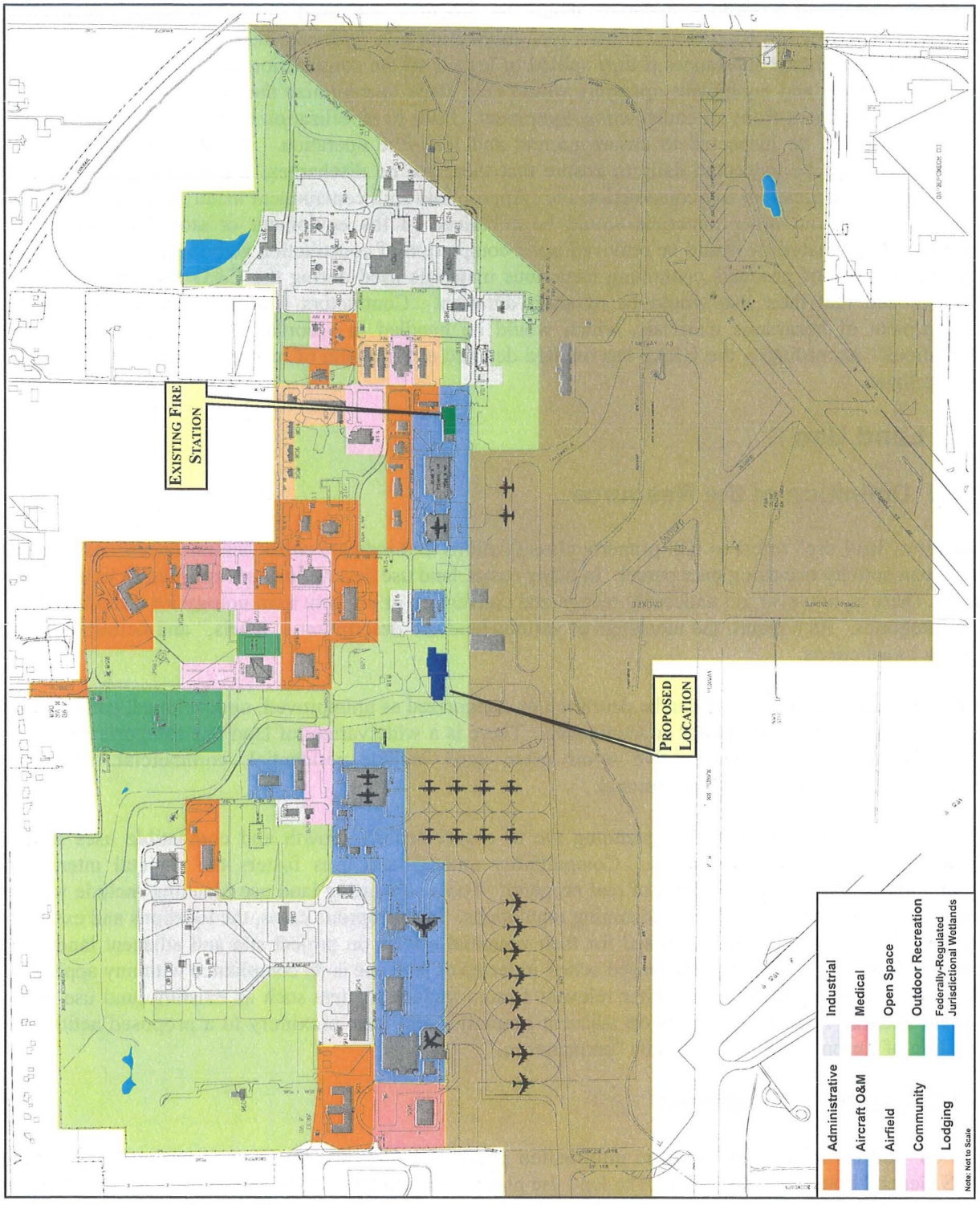

Figure 3-1. Existing Land Use at Niagara Falls ARS

Most of the changes to the Installation's development pattern involve the consolidation of land use pockets to form larger land use areas yielding greater future development potential. Emphasis was also placed on preserving the 100-year floodplain and wetland areas by designating these sites as either open space or outdoor recreation areas.

Niagara Falls ARS is a compact Installation bounded by Tuscarora Road to the west, Lockport Road to the north, Walmore Road to the east, and Niagara Falls IAP to the south. The dominant feature on the southern side of the Installation is the airfield, consisting of permanent and temporary aircraft parking aprons, apron access taxiways and the international airport property. Immediately adjacent to the airfield is a consolidated area devoted to aircraft operations and maintenance. Within this area are key operational facilities, including the fuels systems maintenance hangar, aircraft maintenance hangar, and aircraft maintenance shop, which are served by the hangar access apron. An isolated operational area surrounds the engine test stand.

There are three main land use types within the Installation boundary: administrative, industrial, and aircraft and maintenance. The central portion of the Installation is primarily made up of administrative land use areas. Two large parcels of industrial land use areas are located in the western and eastern portions of the Installation. These areas are surrounded by intermixed open space, community, and recreational land use types.

Off-Installation Land Use. Immediately to the south of the Installation is the main taxiway used by NYANG and AFRC aircraft accessing Niagara Falls IAP. Further south are the IAP's general aviation and passenger terminals and hangars, and the remainder of the airport's runways and taxiways. The presence of these facilities effectively precludes the Installation from constructing any facilities south of this point. To the north, west, and east are areas of rural to low-density residential and industrial land uses.

3.2 Air Quality

3.2.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere. The measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu g/m^3$). The air quality in a region is a result not only of the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.The CAA directed USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to impact human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. USEPA designated $PM_{2.5}$ nonattainment areas in December 2004, and plans to finalize the $PM_{2.5}$ implementation rule by early 2006 (USEPA 2004a). Table 3-1 presents the primary and secondary NAAQS that apply to the air quality in New York (USEPA 2004b).

Table 3-1. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
Carbon Monoxide (CO)			
8-hour Average[1]	9 ppm	(10 mg/m^3)	Primary
1-hour Average[1]	35 ppm	(40 mg/m^3)	Primary
Nitrogen Dioxide (NO_2)			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m^3)	Primary and Secondary
Ozone (O_3)			
1-hour Average[6]	0.12 ppm	(235 µg/m^3)	Primary and Secondary
8-hour Average[5]	0.08 ppm	(157 µg/m^3)	Primary and Secondary
Lead (Pb)			
Quarterly Average		1.5 µg/m^3	Primary and Secondary
Particulate < 10 micrometers (PM_{10})			
Annual Arithmetic Mean[2]		50 µg/m^3	Primary and Secondary
24-hour Average[1]		150 µg/m^3	Primary
Particulate < 2.5 micrometers ($PM_{2.5}$)			
Annual Arithmetic Mean[3]		15 µg/m^3	Primary and Secondary
24-hour Average[4]		65 µg/m^3	Primary
Sulfur Dioxide (SO_2)			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m^3)	Primary
24-hour Average[1]	0.14 ppm	(365 µg/m^3)	Primary
3-hour Average[1]	0.5 ppm	(1300 µg/m^3)	Secondary

Source: USEPA 2004b

Notes: Parenthetical values are approximate equivalent concentrations.
mg/m^3 – milligrams per cubic meter
[1] Not to be exceeded more than once per year.
[2] To attain this standard, the expected annual arithmetic mean PM_{10} concentration at each monitor within an area must not exceed 50 µg/m^3.
[3] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.
[4] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m^3.
[5] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
[6] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1, as determined by Appendix H. (b) The 1-hour NAAQS will no longer apply to an area 1 year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004 (40 CFR 50.9; see Federal Register April 30, 2004 [69 FR 23996]).

Although O_3 is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because O_3 is typically not emitted directly from most emissions sources. Ozone is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or "O_3 precursors." These O_3 precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric O_3 concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO_2.

The General Conformity Rule and the promulgated regulations found in 40 CFR Part 93 exempt certain Federal actions from conformity determinations (e.g., contaminated site cleanup and natural emergency response activities). Other Federal actions are assumed to conform if total indirect and direct project emissions are below *de minimis* levels presented in 40 CFR 93.153. The threshold levels (in tons of pollutant per year) depend upon the nonattainment status that USEPA has assigned to a nonattainment area. Once the net change in nonattainment pollutants is calculated, the Federal agency must compare them to the *de minimis* thresholds.

3.2.2 Existing Conditions

Regional Air Quality. USEPA classifies the air quality in an air quality control region (AQCR) or in subareas of an AQCR according to whether the concentration of criteria pollutants in ambient air exceeds the primary or secondary NAAQS. All areas within each AQCR are therefore designated as either "attainment," "nonattainment," or "unclassified" for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS, nonattainment indicates that air quality exceeds NAAQS, and an unclassifiable air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment.

The New York State Department of Environmental Conservation (NYSDEC) is responsible for implementation of the CAA and has adopted the Federal primary and secondary NAAQS. The state of New York submitted a total suspended particulate (TSP) Attainment Plan for the Niagara Falls Intrastate Air Quality Control Region (NFIAQCR) to USEPA in February 1993, and revised the plan in January 1987. USEPA approved the TSP Attainment Plan in April 1991 (USEPA 2003).

Niagara Falls ARS. Niagara Falls ARS is within the NFIAQCR, which consists of Erie and Niagara counties in the state of New York. The NFIAQCR is designated as a marginal nonattainment area for the 1-hour ozone standard and as a moderate nonattainment area for the 8-hour ozone standard (USEPA 2004c).

3.3 Safety

3.3.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for property damage, serious bodily injury or illness, or death. Human health and safety addresses (1) workers' health and safety during demolition activities and facilities construction, and (2) public safety during demolition and construction activities and during subsequent operations of those facilities.

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous Department of Defense (DOD) and USAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration (OSHA) and USEPA. These standards specify the amount and type of training required for industrial workers, the use of personal protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.3.2 Existing Conditions

All contractors performing construction activities are responsible for following ground safety and OSHA regulations and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and use and availability of Material Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplaces; monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g. infectious waste) agents; recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures or engaged in hazardous waste work.

3.4 Geological Resources

3.4.1 Definition of the Resource

Geological resources consist of the earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of topography, soils, geology, minerals, and, where applicable, paleontology.

Topography and Geology. Topography pertains to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features. Geology, which concerns itself with the study of the earth's composition, provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition. Hydrogeology extends the study of the subsurface to water-bearing structures. Hydrogeological information helps in the assessment of groundwater quality and quantity and its movement.

Soils. Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soils properties must be examined for their compatibility with particular construction activities or types of land use.

3.4.2 Existing Conditions

Topography and Geology. The topography of Niagara Falls ARS is flat to gently sloping, with elevations ranging from 578 to 600 feet above sea level. The Installation is in the Niagarian Provincial series, in the eastern lake section of the Central Lowland physiographic province. The Niagarian Provincial series is "richly fossiliferous" with 400 feet of deposits, including dolomite, limestone, shale, and sandstone, from diverse environments ranging from nonmaritime sandstones to deep water shales (AFRC 1998).

Soils. Niagara Falls ARS occupies level to gently sloping land areas dominated by two soil series: Odessa silty clay loam and the Lakemont silty clay loam. These soils formed in glacial material deposited during and shortly after the Ice Age (the Pleistocene epoch). The Odessa soil, a moderately fine textured soil, covers approximately 95 percent of Niagara Falls ARS. This soil drains somewhat poorly, has moderately slow permeability, and a seasonably high water table at 6 to 12 inches below the surface. The other 5 percent of the Installation is covered by the Lakemont soil series, a moderately coarse and

medium-textured soil that is poorly to very poorly drained, has moderately slow permeability at the surface layer, slow permeability in the subsoil, and a seasonably high water table at or immediately below the surface. The water-holding capacity of both soils is high, and the erosion potential is slight. Approximately half of the area, however, is overlain by pavement and other impermeable structures (AFRC 1998).

3.5 Water Resources

3.5.1 Definition of the Resource

Water resources include groundwater, surface water, floodplains, and wastewater and storm water systems. This evaluation identifies the quantity and quality of the resource and the demand on the resource for potable, irrigation, and industrial purposes.

Groundwater. Groundwater consists of the subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically might be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Surface Water. Surface water resources consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Storm water flows, which might be exacerbated by high proportions of impervious surfaces associated with buildings, roads, and parking lots, are important to management of surface water. Storm water is also important to surface water quality because of the potential to introduce sediments and other contaminants into lakes, rivers, and streams.

Storm water systems convey precipitation away from developed sites to appropriate receiving surface waters. For a variety of reasons, storm water systems might employ a variety of devices to slow the movement of water. For instance, a large, sudden flow could scour a streambed and harm biological resources in that habitat. Storm water systems provide the benefit of reducing amounts of sediments and other contaminants that would otherwise flow directly into surface waters. Failure to appropriately size storm water systems to either hold or delay conveyance of the largest predicted precipitation event will often lead to downstream flooding and the environmental and economic damages associated with flooding. As a general rule, higher densities of development, such as are found in urban areas, require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur in urban centers.

Floodplains. For the purposes of this EA, floodplains are those low-elevation areas along a river or stream channel subject to flooding from rain or melting snow. The risk of flooding typically hinges on local topography, frequency of precipitation events, precipitation intensity, and size of the watershed above the floodplain. The 100-year floodplain is the area that has a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to be in either the 100- or 500-year floodplain, such as hospitals, schools, storage buildings for irreplaceable records, utilities, or emergency services. The Water Resources Council, in *Floodplain Management Guidelines*, suggested that the minimum standard to evaluate a critical action is the 500-year or 0.2 percent chance flood. Federal, state, and local regulations often limit floodplain development to passive uses such as recreational and preservation activities to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, requires Federal agencies to determine whether a proposed action would occur within a floodplain. EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site

in a floodplain, a specific step-by-step process must be followed to comply with EO 11988. This "8-step" process is detailed in the FEMA document "Further Advice on EO 11988 Floodplain Management." The 8 steps in floodplain compliance are

- Determine whether the action will occur in, or stimulate development in, a floodplain.
- Receive public review/input of the Proposed Action.
- Identify and evaluate practicable alternatives to locating in the floodplain.
- Identify the impacts of the Proposed Action (when it occurs in a floodplain).
- Minimize threats to life, property, and natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values.
- Reevaluate alternatives in light of any new information that might have become available.
- Issue findings and a public explanation.
- Implement the action.

Steps 1 and 3 through 6 have been undertaken as part of this EA and are further discussed in Section 4.5.2. Steps 2 and 7 will be undertaken simultaneously with public comments on this EA.

Wastewater Systems. Wastewater treatment systems might treat sanitary sewer, industrial, or both kinds of wastes. Most systems are publicly owned treatment works. For regulatory purposes, there is a subcategory of federally owned treatment works. Wastewater treatment systems consist of a central treatment plant and a collection system of piping from waste sources. As a very general rule, treatment works are identified as primary (mechanical treatment only), secondary (mechanical and biological treatment), or tertiary (mechanical and biological or chemical treatment). Wastewater treatment plants operate under National Pollution Discharge Elimination System (NPDES) permits issued by USEPA or the states pursuant to the Clean Water Act (CWA). Key issues concerning wastewater systems typically involve the age of the system (either its collection system and infiltration/inflow problems or the treatment plant itself), the capacity of a treatment plant (usually expressed in millions of gallons per day), and a treatment plant's record of violations of its NPDES permit.

3.5.2 Existing Conditions

The water resources information provided below was obtained from the Niagara Falls ARS General Plan (NFARS 1998), Integrated Natural Resources Management Plan (AFRC 1998), and Storm Water Pollution Prevention Plan (SWPPP) (NFARS 2002a), unless otherwise cited.

Groundwater. The aquifers of the Lake Erie-Niagara River Basin are primarily carbonate-rock aquifers, characteristic of the Central Lowland Province of western New York. The aquifers typically produce only small to moderate amounts of water to wells. Water is stored and moves mainly in secondary fractures. Minerals in solution are calcite, dolomite, gypsum, and halite, resulting in hard and salty groundwater. Much of the groundwater contains sulfate and chloride ions in excess of 250 milligrams per liter, so quality of water is poor and deteriorates further with depth. Groundwater must be treated for most uses. Niagara Falls ARS has no active potable water wells.

Surface Water. The major surface water feature at Niagara Falls ARS is Cayuga Creek. Cayuga Creek enters the Installation from the east at the Walmore Road gate and flows west along the southern border of the Installation, dividing the ARS from the IAP. Ultimately, the Cayuga drains into the Niagara River, upstream of the American and Horseshoe Falls as part of the Lake Erie-Niagara River Basin.

Two unnamed artificial tributaries of Cayuga Creek are other important surface water features at Niagara Falls ARS. One tributary originates in the northwest portion of the Installation and flows south through

the center of the Niagara Falls ARS. This tributary functions as the primary storm water conveyance, draining half of the Installation's acreage (Outfall 5, see Table 3-2). The second tributary flows north to south along the western end of the airfield outside of the cantonment and has minimal impact on the rest of the Installation.

Storm water is collected from impervious surfaces, such as roads, airfields, and buildings and channeled to six outfalls along Cayuga Creek or its tributaries. Table 3-2 presents the location, total drainage area, and impervious area and percentage associated with each outfall. The storm drainage system consists of catch basins, curb inlets, and culverts, which guide storm water through a combination of underground storm mains, human-made tiled ditches, and natural drainage ways. A 1999 special report, *Summary of Hydrology for the Niagara Falls Air Reserve Station,* by the Buffalo District of the USACE, indicated that development along Cayuga Creek at Niagara Falls ARS only increased runoff by 0.4 percent (USACE 1999). The modeling indicated that the Installation has very little impact on peak discharge of Cayuga Creek downstream.

Niagara Falls ARS operates under the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Storm Water Discharges Associated with Industrial Activity permit which authorizes the discharge of storm water from the facility to "waters of the United States." Projects that require coverage under the SPDES General Permit for storm water discharges from construction activities apply for coverage separately with separate SWPPPs and Notices of Intent. An active SWPPP (NFARS 2002a) is currently in place to minimize the effects of storm water discharge into surface waters.

Table 3-2. Outfall Characteristics at Niagara Falls ARS

Outfall	Location	Total Drainage Area (acres)	Impervious Area (acres)	Percent Impervious (%)
001	Northwest corner, drains Fire Fighting Training Area	4.1	0.9	22
002	Eastern side, includes runoff from the Petroleum, Oil, and Lubricant (POL) Complex	9.2	3.7	40
003	Eastern side, includes runoff from the POL Complex	4.8	2.4	50
004	Southeast corner, drains Base Supply, Vehicle Fuel Station, and vehicle maintenance activities	62.9	18.4	63
005	Southern boundary near tributary and Cayuga confluence drains large portion of Installation. This outfall is south of the Proposed Action.	572.4	78.8	14
006	Just west of 005, drains most 107 ARW activities	53.4	24.5	46

Source: AFRC 1998

The State of New York, under USEPA authority, has recently begun the Phase II Storm Water Requirements for municipal separate storm water sewer systems within urbanized areas. The Buffalo-Niagara Falls area is considered one of these urbanized areas that will be required to develop storm water control programs (NYSDEC 2003). Under the Phase II municipal separate storm water sewer systems regulations, small construction projects (defined as more than 1 acre but less than 5 acres) need permit coverage; construction of that type was previously covered under General SPDES permits.

Floodplains. Based on an April 2005 floodplain survey performed by the Buffalo District of the USACE, for the purposes of this EA, it is assumed that the Proposed Action would take place in the 100-year floodplain. Given the extent of the floodplains, floodwaters could potentially affect many areas and functions of the Installation, particularly Taxiway A3 and the eastern end of the runway. Those localities would be completely inundated as a result of a 100-year storm event. The major tributary flowing north-south through the Installation precludes development because the immediate area is in the 100-year floodplain. Cayuga Creek's floodplain also presents a significant development constraint within certain geographic areas. Figure 3-2 illustrates the 100-year floodplain on the Installation and the Proposed Action.

Wastewater Systems. Wastewater generated by the Installation is disposed of through Niagara County Sewer District's No. 1 sanitary sewer lines and sewage treatment facility under an Industrial Waste Discharge Permit. The permit contains requirements for discharge limitations, monitoring, and types of waste in addition to the conditions of the District's Sewer Use Law. Niagara Falls ARS's wastewater is carried off Installation via one 8-inch force main. Because the 914 AW and 107 ARW systems are tied together, all wastewater is delivered off Installation with this line. All wastewater is delivered to the District's wastewater treatment plant, where it is treated and discharged. Niagara Falls ARS does not use septic systems for the treatment and disposal of wastewater. Industrial wastes are treated through oil/water separators and grease traps which subsequently discharge directly to the sanitary sewer system for additional treatment.

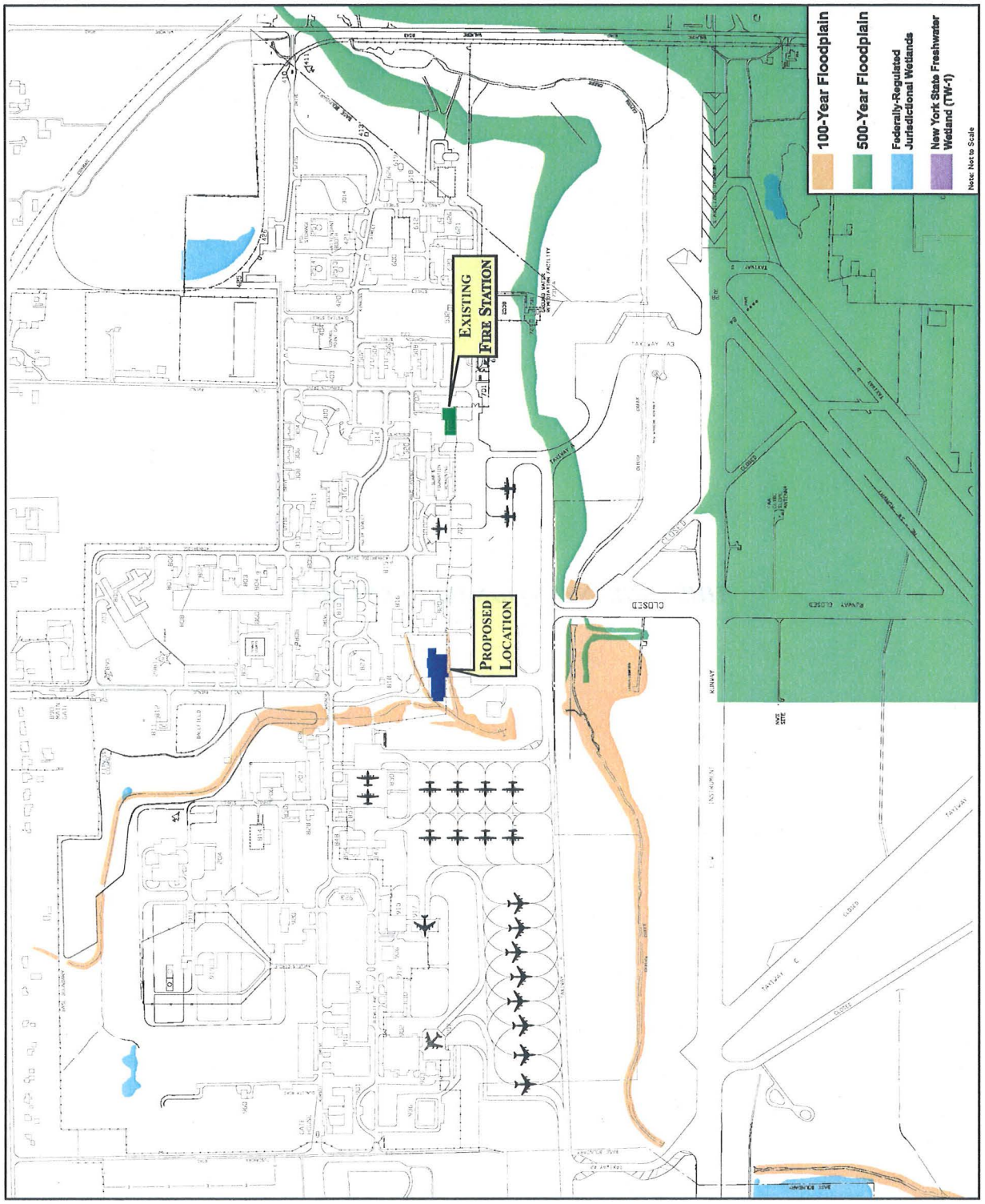

Figure 3-2. Proposed Project Locations, 100-Year and 500-Year Floodplain, and Wetlands

THIS PAGE INTENTIONALLY LEFT BLANK

4. Environmental Consequences

Section 4 presents an evaluation of the environmental impacts that could result from implementing the Proposed Action, alternatives, or the No Action Alternative. This section focuses on impacts considered potentially significant. The general approach followed throughout this section is to describe briefly the range of impacts that would occur and then provide a discussion of impacts that are considered significant.

The EA analysis includes direct, indirect, and cumulative effects. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Cumulative effects are impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). The cumulative impact analysis is provided in Section 5 of this EA.

The specific criteria for determining the significance of impacts and assumption for the analyses are presented under each resource area. Significance criteria for most potential impacts were obtained from standard criteria; Federal, state, or local agency guidelines and requirement; and legislative criteria. Long-term implications of the Proposed Action are also presented in this section.

The significance of an action is measured in terms of its context and intensity. The extent to which a proposed action might affect an environmental resource depends on many factors. In some cases, environmental resources might be affected directly; in others, they might be affected indirectly; and in some cases, not affected at all.

The significance of an action is analyzed in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance might vary with the setting of a proposed action.

Intensity refers to the severity of impact. Impacts might be beneficial or adverse. Consideration must be given to whether an impact affects public health or safety and whether it affects areas with unique characteristics, such as historical or cultural resources, wetlands, or ecologically critical areas. The significance of impacts could also depend on the degree of their being controversial or posing highly uncertain, unique, or unknown risks. Significance might be found where an action sets a precedent for future actions having significant impacts, as well as in cases involving cumulative impacts. In considering intensity, consideration must be given to the degree to which the action might adversely affect animal or plant species listed as endangered or threatened or their habitat. Finally, in evaluating intensity, consideration must be given to whether an action threatens a violation of a law or regulation imposed for the protection of the environment.

4.1 Land Use

4.1.1 Significance Criteria

The significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions. In general, a land use impact would be significant if it were to

- Be inconsistent or in noncompliance with existing land use plans or policies
- Preclude the viability of existing land use
- Preclude continued use or occupation of an area
- Be incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflict with planning criteria established to ensure the safety and protection of human life and property

Most of the changes to the Installation's development pattern involve the consolidation of land use pockets to form larger land use areas yielding greater future development potential. Emphasis was also placed on preserving the 100-year floodplain and wetland areas by designating these sites as either open space or outdoor recreation areas. The key to successfully developing Niagara Falls ARS will be the identification and consolidation of compatible activities and the continued use of land use areas as opposed to individually sited facilities.

4.1.2 Proposed Action

Implementation of the Proposed Action has the potential for direct and indirect adverse effects on land use. Direct impacts from the Proposed Action include converting land designated as "open land" to developed "Aircraft O&M" (see Figure 3-1). This parcel of land has been designated as "open land" due to its proximity to the 100-year floodplain.

The Proposed Action has the potential to increase storm water runoff from the creation of impervious surfaces. Since the type of land use is a factor in the amount of runoff from a watershed, changes in the land use will change the runoff. However, Niagara Falls ARS has a no net runoff requirement as part of the SWPPP. Based on the results of the USACE hydrology study, development at Niagara Falls ARS would not add a significant area of impervious surfaces that would affect downstream water quality (see section 4.5.2 for further discussion on SWPPP practices used to reduce runoff amounts). Therefore, the Proposed Action would cause minor impacts to land use.

Impacts associated with construction would include temporary disruption of land uses due to elevated noise levels, increased dust, interference with roadway access and visual effects. The installation of utilities, such as power, water, and sanitary sewer, could temporarily indirectly affect land uses.

4.2 Air Quality

4.2.1 Significance Criteria

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS "attainment" areas would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of 10 percent or more in an affected AQCR emissions inventory
- Exceed any Evaluation Criteria established by a State Implementation Plan (SIP)

Effects on air quality in NAAQS "nonattainment" areas are considered significant if the net changes in project-related pollutant emissions result in any of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Delay the attainment of any standard or other milestone contained in the SIP

With respect to the General Conformity Rule, effects on air quality would be considered significant if the proposed Federal action would result in an increase of a nonattainment or maintenance area's emissions inventory by 10 percent or more for one or more nonattainment pollutants, or if such emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area.

The *de minimis* threshold emissions rates were established by USEPA in the General Conformity Rule to focus analysis requirements on those Federal actions with the potential to have "significant" air quality impacts. These *de minimis* thresholds are similar, in most cases, to the definitions for major stationary sources of criteria and precursors to criteria pollutants under the CAA's New Source Review (NSR) Program (CAA Title I). The *de minimis* thresholds vary depending upon the severity of the nonattainment area classification.

In addition to the *de minimis* emissions thresholds, Federal Prevention of Significant Deterioration (PSD) regulations define air pollutant emissions to be significant if the source is within 10 kilometers of any Class I area, and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 $\mu g/m^3$ or more (40 CFR 52.21(b)(23)(iii)).

4.2.2 Environmental Consequences

No long-term impacts to air quality are expected from the Proposed Action. The Proposed Action would have short-term, minor, direct adverse effects to air quality during construction and negligible, short-term, direct impacts during operation. Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with NAAQS. The Proposed Action would generate air pollutant emissions as a result of grading, filling, compacting, demolition, and construction operations, but these emissions would be temporary and would not be expected to generate any off-site effects.

The construction projects would generate TSP and PM_{10} emissions as fugitive dust from ground-disturbing activities (e.g., grading, demolition, soil piles) and combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site-preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 Section 11.9 dated October 1998 and Section 13.2 dated December 2003. These estimates assume that 230 working days are available per year for construction (accounting for weekends, weather, and holidays). The average soil percent moisture was estimated to be 60 percent, which is based upon a ratio of the calculated soil moisture to the maximum soil moisture for the region (NOAA 2005). Wind speed of greater than 12 miles per hour is recorded an estimated 40 percent of the time, which is based on average wind rose data and measured speed for the Buffalo, New York area near Niagara Falls ARS (NRCS 2003).

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment, as well as evaporative emissions from architectural coatings and asphalt paving operations. These emissions would be of a temporary nature. The emissions factors and estimates were generated based on guidance provided in *Guide to Air Quality Assessment* from the Sacramento Metropolitan Air Quality Management District (SMAQMD 1994).

For purposes of this analysis, the project duration and affected project site area that would be disturbed (presented in Section 2) were used to estimate fugitive dust and all other criteria pollutant emissions. The construction emissions presented in Table 4-1 include the estimated annual construction PM_{10} emissions associated with the Proposed Action at Niagara Falls ARS. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. However, the effects would be temporary, and would fall off rapidly with distance from the proposed construction site.

Specific information describing the types of construction equipment required for a specific task, the hours the equipment is operated, and the operating conditions vary widely from project to project. For purposes of analysis, these parameters were estimated using established methodologies for construction and experience with similar types of construction projects. Combustion by-product emissions from construction equipment exhausts were estimated using USEPA's AP-42 emissions factors for heavy-duty, diesel-powered construction equipment.

The construction emissions presented in Table 4-1 include the estimated annual emissions from construction equipment exhaust associated with the Proposed Action. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. Early phases of construction projects involve heavier diesel equipment and earthmoving, resulting in higher NO_x and PM_{10} emissions. Later phases of construction projects involve more light gasoline equipment and surface coating, resulting in more CO and VOC emissions. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term effects. Emission estimates were based on the assumption that the Proposed Action would be completed in one calendar year.

Since Niagara Falls ARS is within a nonattainment area for O_3, General Conformity Rule requirements are applicable. However, as shown in Table 4-1, the Proposed Action would generate emissions well below conformity *de minimis* limits as specified in 40 CFR 93.153. Therefore, the Proposed Action would not trigger the requirement to prepare a conformity determination report to demonstrate conformity with the General Conformity Rule. Also, since the emissions generated would be below *de minimis* levels, it is reasonable to assume that the temporary construction emissions caused by the Proposed Action would not cause a violation of the NAAQS. In summary, no significant impact on regional or local air quality would result from implementation of the Proposed Action. Appendix C details the emissions factors, calculations, and estimates of construction-related emissions for the Proposed Action.

Local and regional pollutant effects resulting from direct and indirect emissions from stationary emissions sources under the Proposed Action are addressed through Federal and state permitting program requirements under NSR regulations (40 CFR Parts 51 and 52).

Table 4-1. Annual Construction Emissions Estimates from the Proposed Action

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM_{10} (tpy)
Calendar Year 2006	8.46	1.44	10.22	0.24	1.87

tpy: tons per year

4.3 Safety

4.3.1 Significance Criteria

Impacts were assessed based on direct effects from construction activities, as well as secondary effects, such as environmental contamination. The extent of these secondary effects is situationally dependent and difficult to quantify.

4.3.2 Proposed Action

The Proposed Action would have major, direct, long-term beneficial impacts to safety from improved fire fighter training and facilities from which to operation. Short-term, minor adverse effects on safety would be expected from construction activities. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at Niagara Falls ARS during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed Action would not pose a safety risk to Installation personnel or to activities at the Installation.

The preferred location of the Proposed Action would result in direct, long-term beneficial impacts to safety due to the minimized response time by the Fire Department to structural and aircraft fires and life safety requests that could occur at any time. The Fire/Crash Rescue Station and access roads would be constructed to be at least one foot above the 100-year floodplain elevation. As a result, Fire/Crash Rescue Station operations would not be affected by flood waters.

Mitigation. Niagara Falls ARS would implement necessary floodproofing measures during the construction of the Fire/Crash Rescue Station. For the purposes of this EA, floodproofing is defined as activities to eliminate or reduce the potential for flood damage. Examples of floodproofing activities for the Fire/Crash Rescue Station would include raising access roads and facilities above the 500-year floodplain; constructing culverts to handle addition water volume in the case of flood, constructing berms; elevating ground-mounted transformers and vulnerable equipment, and electrical controls; storing important documents where they would not get damaged; elevating or relocating furnaces, hot water heaters, and electrical panels; providing openings in foundation walls that allow floodwaters in and out, thus avoiding collapse; building and installing flood shields for doors and other openings (after evaluating whether the building can handle the forces) to prevent floodwaters entering; and installing sump pumps with back-up power.

4.4 Geological Resources

4.4.1 Significance Criteria

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential impacts of a proposed action on geological resources. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

Analysis of potential impacts on geological resources typically includes

- Identification and description of resources that could potentially be affected.
- Examination of a proposed action and the potential effects this action might have on the resource.

- Assessment of the significance of potential impacts.
- Provision of mitigation measures in the event that potentially significant impacts are identified.

4.4.2 Proposed Action

Construction of the Fire/Crash Rescue Station would have negligible effects on geological resources (soils) with proper sediment and erosion control measures implemented during construction. Construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would limit potential impacts resulting from construction activities. Fugitive dust from construction activities would be minimized by watering and soil stockpiling, thereby reducing to negligible levels the total amount of soil exposed. Standard erosion controls (such as silt fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would also reduce potential impacts related to these characteristics. Niagara Falls ARS operates under the *New York State Department of Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Storm Water Discharges Associated with Industrial Activity* permit which authorizes the discharge of storm water from the facility to "waters of the United States." Projects that require coverage under the SPDES General Permit for storm water discharges from construction activities apply for coverage separately with separate SWPPPs and Notices of Intent.

4.5 Water Resources

4.5.1 Significance Criteria

Significance criteria for water resources impacts are based on water availability, quality, and use; existence of floodplains; and associated regulations. A potential impact on water resources would be significant if it were to result in one of the following scenarios:

- Reduce water availability to existing users or interfere with the supply.
- Create or contribute to overdraft of groundwater basins or exceed safe annual yield of water supply sources.
- Adversely affect water quality or endanger public health by creating or worsening adverse health hazard conditions.
- Threaten or damage unique hydrologic characteristics.
- Violate established laws or regulations that have been adopted to protect or manage water resources of an area.

Significance criteria for impacts on floodplains are based on EO 11988 and the protection of public health and safety. Impacts on floodplains would be significant if the Proposed Action involved major construction in a floodplain that would substantially damage floodplain resources or would risk public health and safety due to flooding.

4.5.2 Proposed Action

The Proposed Action would have long-term, minor direct adverse effects on the Installation's 100-year floodplain. A portion of the Fire/Crash Rescue Station would be in the 100-year floodplain. The 1999 USACE Hydrology indicated that development along Cayuga Creek at Niagara Falls ARS only increased runoff by 0.4 percent (USACE 1999). The modeling indicated that the Installation has very little impact on peak discharge of Cayuga Creek downstream. Further development at Niagara Falls would not add a significant area of impervious surfaces that would affect downstream water quality.

When facilities are built within the floodplains of rivers and streams, important flood storage capacity is removed. When a floodplain is filled, water cannot spread out. Displaced water must go somewhere; usually flooding is forced into other areas. Building in the floodplain may also constrict the area where water can flow. Increased water velocity might cause additional erosion problems and floodwater backs up, flooding upstream areas.

Also with development come more intensive land use and a related increase in pollutants, negatively affecting water quality and stream health. There is a direct relationship between the intensity of development in an area (indicated by the amount of impervious surfaces) and the degree of degradation of its streams. As little as 20 percent impervious surface cover in a watershed can render a stream lifeless. The impervious surfaces prevent infiltration and the natural processing of nutrients, sediment, pathogens, and other contaminants. As a result, surface water quality becomes degraded. Healthy water systems provide drainage, aquatic habitat, and natural filtering of pollutants.

Under the Proposed Action, short-term, minor adverse effects on sedimentation and erosion would be expected from construction activities of the Proposed Action. Niagara Falls ARS operates under the *New York State Department of Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Storm Water Discharges Associated with Industrial Activity* permit which authorizes the discharge of storm water from the facility to "waters of the United States." Projects that require coverage under the SPDES General Permit for storm water discharges from construction activities apply for coverage separately with separate SWPPPs and Notices of Intent.

Adherence to proper engineering practices and applicable codes and ordinances would reduce storm water runoff-related impacts to a level of insignificance. Erosion and sedimentation controls would be in place during construction to reduce and control siltation or erosion impacts on areas outside of the construction site. Construction activities would require the use of water for dust suppression. The volume of water to be used for dust control would be minimal. No runoff would be expected to result for this process.

Therefore, minor long-term direct adverse effects on surface water would be expected as a result of the Proposed Action. Implementation of the Proposed Action would result in the re-grading of the existing drainage ditch in the vicinity of the proposed storm sewer construction area and the Proposed Action. The total area of disturbance would be approximately 175 feet. Erosion and sedimentation controls would be in place during construction to reduce and control siltation or erosion impacts on areas downstream from the construction site.

Mitigation. In accordance with Step 5 of the FEMA document, "Further Advice on EO 11988," when the only practicable alternative is to construct in a floodplain, the agency should minimize threats to life, property, and natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values. Niagara Falls ARS would implement necessary floodproofing measures during the construction of the Fire/Crash Rescue Station, as described in Section 4.3.2.

4.6 No Action Alternative

Under the No Action Alternative, existing conditions would remain as is and none of the proposed projects would occur. If the No Action Alternative were carried forward, there would be no change in or effects on air quality, noise, land use, geological resources, biological resources, infrastructure, or hazardous materials and waste at Niagara Falls ARS. Long-term adverse effects on water resources and infrastructure would not be expected. Compared to constructing the Fire/Crash Rescue Station at the preferred or alternative site, the No Action Alternative would have a major, long-term adverse effect on Installation safety due to inferior facilities and less efficient fire fighter training and operations.

THIS PAGE INTENTIONALLY LEFT BLANK

5. Cumulative and Adverse Impacts

Cumulative impacts on environmental resources result from incremental effects of proposed actions, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, state, and local) or individuals. Informed decisionmaking is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

5.1 Impact Analysis

Other projects evaluated in the cumulative impact analysis were identified through a review of public documents, information gained from the IICEP, and coordination with local agencies.

In 2004, 914 AW proposed eight construction and maintenance projects to renovate, construct, or replace existing facilities, implement the Integrated Pest Management Plan, and conduct Annual Fire Truck Dry Chemical Testing at Niagara Falls ARS. The proposed projects are (1) revitalize Water Distribution System, (2) extension of the AFRC Ramp, (3) widen driveway at Hazardous Waste Storage Building, (4) add to and alter Civil Engineering Building, (5) alter and repair Parking Lots, (6) repair and replace Sanitary Sewer System, (7) construct Bivouac, and (8) replace the Wagner Drive Culvert. Two additional proposed actions, the construction and operation of a Fire Training Tower and Car Wash at Niagara Falls ARS, are in the environmental assessment phase.

NFTA has plans for several small facility upgrades at the Niagara Falls IAP. The East Apron Expansion Project will be undertaken to meet new FAA requirements. The NFTA is also undertaking preliminary discussions to construct a new terminal building, but no preliminary design work has been conducted or funded (Minkel 2004).

The number of new development activities within the Niagara Falls area is generally low, and no cumulative impacts related to land use, overall zoning, and land management objectives have been identified as a part of the proposed Military Entrance Processing Station (MEPS) construction.

Land Use. The Proposed Action is in the Installation's 100-year floodplain and would have a long-term, minor direct impact on land use at Niagara Falls ARS. The Proposed Action would not require or stimulate industrial, commercial, or residential development to support it. The Proposed Action does not have the potential to affect the overall trend or pattern of development around the Niagara Falls ARS. No significant development projects were identified in the vicinity of Niagara Falls ARS. No cumulative impacts related to land use, overall zoning, and land management objectives were identified.

Air Quality. There would not be an increase or additional air quality effects from the Proposed Action. The combination of these projects could produce short-term minor adverse effects during construction. One of the most influential air quality fluctuations is the emissions from automobiles. An increase in vehicles to the area would have the greatest impact on CO emissions, for which the area is in attainment. Construction of the Fire/Crash Rescue Station would have negligible impacts on air quality.

Geological Resources. The Proposed Action would occur on previously disturbed lands. Construction activities, such as grading, excavating, and recontouring of the soil, would result in further soil disturbance. The impacts would be permanent, but localized to the location of the Proposed Action, and therefore would not be significant.

Water Resources. The proposed location of the Fire/Crash Rescue Station would have minor adverse impacts on the 100- and/or 500-year floodplain at Niagara Falls ARS. Best management practices would be implemented in the design and development of the Proposed Action. With adherence to BMPs, the Proposed Action would result in no net increase of storm water runoff within its watershed. Since a large proportion of the recharge areas in and around Niagara Falls ARS remain undeveloped (or lack extensive impervious surfaces) the cumulative effects of reduced surficial aquifer recharge would not be significant.

Table 5-1 summarizes potential cumulative effects on resources from the Proposed Action when combined with other past, present, and future activities.

5.2 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from implementation of the Proposed Action. None of these impacts would be significant.

Table 5-1. Cumulative Effects to Resources

Resource	Past Actions	Current Background Activities	Proposed Action	Future Actions	Cumulative Effects
Land use	Past development practices (conversion of forest to agriculture) has extensively modified land use	Military installation, commercial, residential, light industrial land uses	Change from open space to Aircraft O&M. Construction within the 100-and 500-year floodplain.	None	Loss of open space.
Air Quality	Marginal nonattainment area for O_3	Emissions from aircraft, vehicles, buildings	None	None	Continued marginal nonattainment for O_3, effect not significant
Geological Resources	Past development practices (conversion of forest to agriculture) has extensively modified soil	None	Grading, excavating, and recontouring of the soil would result in further soil disturbance	Grading, excavating, and recontouring of the soil would result in further soil disturbance	Impacts would be permanent but localized, effect not significant
Water Resources	Surface water quality moderately impacted by development	Storm water discharge to Cayuga Creek within permitted limits	Potential sedimentation from construction activities, increased percentage of impervious surface area. Impact on the 100- and 500-year floodplain.	None	Structure built in 100-year floodplain, rerouting of Cayuga Creek tributaries.

Geological Resources. Under the Proposed Action, construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would limit potential impacts resulting from construction activities. Standard erosion control means would also reduce potential impacts related to these characteristics. Although unavoidable, impacts on soils at the Installation are not considered significant.

Energy. The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource. Energy supplies, although relatively small, would be committed to the Proposed Action or No Action Alternative.

5.3 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

Impacts on the ground surface as a result of the Proposed Action would occur entirely within the boundaries of Niagara Falls ARS. Construction of the Proposed Action would result in a significant or incompatible land use change on the Installation. The proposed location of the Fire/Crash Rescue Station would be constructed in an area designated as open space because of the 100-year floodplain. However, the open space lost would be approximately one percent of the total open space on the Installation. Consequently, the amount of open space lost from construction of the Fire/Crash Rescue Station would be insignificant. The Proposed Action would not conflict with any applicable off-Installation land use ordinances or designated clear zones.

5.4 Relationship Between the Short-term Use of the Environment and Long-term Productivity

Short-term uses of the biophysical components of human environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity that occurs over a period of less than 5 years. Long-term uses of human environment include those impacts occurring over a period of more than 5 years, including permanent resource loss.

Several kinds of activities could result in short-term resource uses that compromise long-term productivity. Filling of wetlands or loss of other especially important habitats and consumptive use of high-quality water at nonrenewable rates are examples of actions that affect long-term productivity.

The Proposed Action would not result in an intensification of land use at Niagara Falls ARS and in the surrounding area. Development of the Proposed Action would represent a negligible loss of open space. Therefore, it is anticipated that the Proposed Action would result in minimal cumulative land use or aesthetic impacts.

5.5 Irreversible and Irretrievable Commitments of Resources

The irreversible environmental changes that would result from implementation of the Proposed Action, and Alternatives, involve the consumption of material resources, energy resources, land, biological habitat, and human resources. The use of these resources is considered to be permanent.

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result

from use or destruction of a specific resource that cannot be replaced within a reasonable time frame (e.g., energy and minerals).

Material Resources. Material resources used for the Proposed Action and alternatives include building materials (for construction of facilities), concrete and asphalt (for roads), and various material supplies (for infrastructure) and would be irreversibly lost. Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. Energy resources utilized for the Proposed Action would be irretrievably lost. These include petroleum-based products (such as gasoline and diesel), natural gas, and electricity. During construction, gasoline and diesel would be used for the operation of construction vehicles. During operation of the Fire/Crash Rescue Station, gasoline or diesel would be used for the operation of private and government-owned vehicles. Natural gas and electricity would be used by operational activities. Consumption of these energy resources would not place a significant demand on their availability in the region.

Biological Habitat. The Proposed Action would result in minimal loss of vegetation and wildlife habitat on the proposed construction site. The location of the proposed Fire/Crash Rescue Station has been previously disturbed. Furthermore, the Proposed Action would remove open space or undeveloped land but only land that is not functioning as biological habitat.

Human Resources. The use of human resources for construction and operation is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action and alternatives represent employment opportunities, and is considered beneficial.

6. Preparers

This EA has been prepared under the direction of Niagara Falls ARS. The individuals who contributed to the preparation of this document are listed below.

Suanne Collinsworth
engineering-environmental Management (e^2M), Inc.
M.S. Environmental Sciences and Engineering
B.S. Geology
Certificate of Water Quality Management
Years of Experience: 8

Tim Demorest
e^2M
A.M. Classical Studies
B.A. Classical Studies
Years of Experience: 3

Brian Hoppy
e^2M
B.S. Biology
Certificate of Environmental Management
Years of Experience: 15

Ron Lamb, CEP
e^2M
M.S. Environmental Science
M.A. Political Science
B.A. Political Science
Years of Experience: 20

Devin Scherer
e^2M
B.S. Biology
Years of Experience: 2

Rachel Schneider
e^2M
B.A. Chemistry
Years of Experience: 5

Nick Steinke
e^2M
B.S. Manufacturing Engineering
Years of Experience: 4

THIS PAGE INTENTIONALLY LEFT BLANK

7. References

AFRC 1996 — Air Force Reserve Command (AFRC). 1996. *Final Cultural Resource Management Plan Niagara Falls Air Reserve Station Niagara Falls, New York.* Prepared by Science and Engineering Design Associates, Inc. July 1996.

AFRC 1998 — AFRC. 1998. *Final Integrated Natural Resources Management Plan Niagara Falls Air Reserve Station Niagara Falls, New York.* Prepared by Science and Engineering Design Associates, Inc. February 1998.

Minkel 2004 — Minkel, Kim. 2004. Personal communication between Ms. Kim Minkel, Niagara Frontier Transportation Authority (NFTA), Niagara Falls, NY and Mr. Ron Lamb, e^2M. February 10, 2004.

NFARS 1998 — Niagara Falls Air Reserve Station (NFARS). 1998. *General Plan Niagara Falls Air Reserve Station.* November 1998.

NFARS 2001 — NFARS. 2001. *Erosion and Sedimentation Control Manual Niagara Falls Air Reserve Station, New York.* Prepared by Ecology and Environment, Inc. February 1998.

NFARS 2002a — NFARS. 2002. *Storm Water Pollution Prevention Plan Niagara Falls Air Reserve Station New York.* Prepared by Ecology and Environment, Inc. November 2002.

NFARS 2005 — NFARS. 2005. DRAFT *Cold War Resources Survey and Evaluation* at Niagara Falls Air Reserve Station, NY. Prepared for Department of the Air Force, Brooks City-Base, TX 78235-5112 and Niagara Falls Air Reserve Base, Niagara Falls, NY 14304. Prepared by Science Applications International Corporation (SAIC), Reston, VA 20190. January 18, 2005.

NOAA 2005 — NOAA. February 2005. National Oceanic and Atmospheric Administration (NOAA). "Soil Moisture." Available online: *<http://www.cpc.noaa.gov/products/soilmst/w.shtml>*. Accessed April 10, 2005.

NRCS 2003 — Natural Resources Conservation Service (NRCS). May 2003. Natural Resources Conservation Service (NRCS). "Wind Rose Data for Buffalo, NY". Available online: *<ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/new_york/buffalo/>*. Accessed April 10, 2005.

NYSDEC 2003 — New York State Department of Environmental Conservation (NYSDEC). 2003. New York State DEC Stormwater Information. NYSDEC Office of Natural Resources and Water Quality, Division of Water Website. *<http://www.dec.state.ny.us/website/dow/mainpage.htm>*. Accessed 18 August 2003.

SMAQMD 1994 — Sacramento Metropolitan Air Quality Management District. (SMAQMD). 1994. *Thresholds of Significance*. December 1994.

USACE 1999 — USACE, Buffalo District. 1999. *Summary of Hydrology for the Niagara Falls Air Reserve Station, New York.* Buffalo, NY. October 1999.

USEPA 2003 — USEPA. November 2003. New York Total Suspended Particulate (TSP) SIP: Maintenance Plan for the Niagara Frontier Air Quality Control Region." Available online: *<http://www.epa.gov/region02/air/sip/summaries_ny/12452.htm>*. Accessed April 10, 2005.

USEPA 2004a USEPA. December 2004. "Fine Particle ($PM_{2.5}$) Designations." Available online: <*http://www.epa.gov/pmdesignations/*>. Accessed April 10, 2005.

USEPA 2004b USEPA. October 2004. "National Ambient Air Quality Standards." Available online: <*http://www.epa.gov/air/criteria.html*>. Accessed April 10, 2005.

USEPA 2004c USEPA. December 2004. "Green Book Nonattainment Areas for Criteria Pollutants." Available online: <*http://www.epa.gov/oar/oaqps/greenbk/*>. Accessed April 10, 2005.

APPENDIX A

APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA

APPENDIX A
APPLICABLE LAWS, REGULATIONS, POLICIES AND PLANNING CRITERIA

When considering the affected environment, physical, biological, economic, and social environmental factors must be considered. In addition to NEPA there are other environmental laws as well as EOs to be considered when preparing EAs and EISs. These laws are summarized below.

Safety

AFI 91-202, the USAF Mishap Prevention Program, implements *AFPD 91-2, Safety Programs*. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information. This instruction applies to all USAF personnel.

AFI 91-301, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program, implements AFPD 91-3, Occupational Safety and Health, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of Air Force resources and to protect Air Force personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program (AFI 91-202), these standards ensure all Air Force workplaces meet Federal safety and health requirements. This instruction applies to all Air Force activities.

Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990, recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation's air resources, the CAA authorizes the USEPA to set six National Ambient Air Quality Standards (NAAQSs) which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to State and local governments. States are directed to utilize financial and technical assistance as well as leadership from the Federal government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by the EPA as being in attainment or non-attainment to pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCR). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area is designated as unclassifiable where insufficient monitoring data exists. Section 309 of the CAA authorizes the EPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action may have on NAAQS due to short-term increases in air pollution during construction as well as long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency may also be subject to EPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal immunity from complying with the CAA and states all Federal agencies will comply with all Federal and State approved requirements.

Land Use

Land use guidelines established by the U.S. Department of Housing and Urban Development (HUD) and based on findings of the Federal Interagency Committee on Noise (FICON) recommend acceptable levels of noise exposure for land use.

Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by the EPA and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires the EPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits are issued by EPA or the appropriate State if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredged and fill material into waters of the United States. Section 404 permits are issued by the US Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands which are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

The Safe Drinking Water Act (SDWA) of 1974 establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new Federal enforcement responsibility on the part of the EPA. The 1986 amendments to the SDWA require the EPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs) and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants, and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current Federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

The Coastal Zone Management Act (CZMA) of 1972 is concerned with the effective management, beneficial use, protection, and development of the Nation's coastal zone. The coastal zone refers to the coastal waters and the adjacent shorelines including islands, transitional and intertidal areas, salt marshes, wetlands, and beaches, and includes the Great Lakes. The CZMA declares a National policy to preserve, protect and develop, and where possible restore or enhance the resources of the Nation's coastal zone. The CZMA encourages states to exercise their full authority over the coastal zone, through the development of land and water use programs in cooperation with Federal and local governments. States may apply for grants to help develop and implement management programs to achieve wise use of the land and water resources of the coastal zone. Development projects affecting land or water use or natural resources of a coastal zone, must ensure the project is, to the maximum extent practicable, consistent with the state's coastal zone management program.

EO 11988, "Floodplain Management," May 24, 1977, directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If it is found there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

APPENDIX B

PUBLIC INVOLVEMENT/INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE LETTER AND LIST

APPENDIX B

PUBLIC INVOLVEMENT/INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE LIST

New York State Department of Environmental Conservation
Buffalo Regional Headquarters
270 Michigan Avenue
Buffalo, NY 14203-2999

U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, NY 14207

Mr. Gregory Tessmann
District Conservationist
U.S. Department of Agriculture
Natural Resources Conservation Service,
Lockport Service Center
4487 Lake Avenue
Lockport, NY 14094-1139

Kevin P. O'Brien, PE
Niagara County Dept. of Public Works
Brooks County Office Building
59 Park Avenue
Lockport, NY 14094

Ken Markunas
New York State Office of Parks, Recreation, and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189
Waterford, NY 12188-0189

Arthur F. Kroening
Superintendent
Town of Wheatfield Highway Department
6860 Ward Road
Niagara Falls, NY 14304

Mr. Kofi Fynn-Aikins
Supervisory Fish & Wildlife Biologist, Chief
U.S. Fish & Wildlife Service
Lower Great Lakes Region
Fishery Resources Office
405 North French Road
Suite 120 A
Amherst, NY 14228

Office of Environmental Services
City Hall
745 Main Street
Niagara Falls, NY 14302-0069

FEMA Region II
26 Federal Plaza, Suite 1307
New York, NY 10278-0001

«Date»

«Name»
«Title»
«Company»
«Address1»
«Address2»
«CityStateZip»

Dear «Name»

The Air Force Reserve Command (AFRC) and 914th Airlift Wing (914 AW) has prepared a Draft Environmental Assessment (EA) on the proposed Construction of a Fire/Crash Rescue Station at Niagara Falls ARS, NY. The environmental impact analysis process for this proposal is being conducted by the AFRC in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. The Draft EA for the proposed Construction of a Fire/Crash Rescue Station is included with this correspondence as an attachment.

In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the enclosed Draft EA and solicit your comments concerning the proposal and any potential environmental consequences. Please provide written comments or information regarding the action at your earliest convenience but no later than 30 days from the date of this letter. Appendix B of the Draft EA contains a listing of those Federal, state, and local agencies that have been contacted. If there are any additional agencies that you feel should review and comment on the proposed activities, please include them in your distribution of this letter and the attached materials.

Please address questions concerning or comments on the proposal to our consultant, engineering-environmental Management, Inc. (e^2M). The point-of-contact at e^2M is Mr. Ron Lamb. He can be reached at (703) 273-7171. Please forward your written comments to Mr. Lamb, in care of engineering-environmental Management, Inc. (e^2M), 3949 Pender Drive, Suite 120, Fairfax, Virginia 22030. Thank you for your assistance.

Sincerely

Dermott F. Smyth
Base Civil Engineer

Attachments:
Draft EA

New York State Department of Environmental Conservation
Division of Environmental Permits, Region 9
270 Michigan Avenue, Buffalo, New York, 14203-2999
Phone: (716) 851-7165 • **FAX:** (716) 851-7168
Website: www.dec.state.ny.us

Denise M. Sheehan
Commissioner

February 13, 2006

Mr. Ron Lamb, CEP
engineering-environmental Management, Inc.
3949 Pender Drive, Suite 120
Fairfax, Virginia 22030

Dear Mr. Lamb:

FIRE/CRASH RESCUE STATION CONSTRUCTION
NIAGARA FALLS AIR RESERVE STATION
TOWNS OF NIAGARA AND WHEATFIELD
NIAGARA COUNTY

This will acknowledge the February 3, 2006 receipt of the Draft Environmental Assessment (EA) on the proposed construction of a Fire/Crash Rescue Station at Niagara Falls Air Reserve Station (ARS). Please recognize that Cayuga Creek and its tributaries within the Niagara Falls ARS are not regulated by virtue of their "C" water quality standards (6NYCRR 837.4 Item Nos. 15 and 17) nor are they navigable under State definition. Consequently, the relocation of approximately 175 feet of unnamed tributary; replacing approximately 475 feet of drainage ditch at the northern portion of the site with concrete storm water conduits; and redefining, regarding and stabilizing a drainage ditch at the southern portion of the site where the ditch meets the unnamed tributary will not require a Protection of Waters Permit from this Department pursuant to Article 15, Title 5 of the NYS Environmental Conservation Law (ECL). Moreover, there are no wetlands regulated pursuant to Article 24 (Freshwater Wetlands) within 100 feet of the proposed Fire/Crash Rescue Station, the parking lot for 73 vehicles and the new driveway/access road.

Since constructing the 30,343 square foot Fire/Crash Rescue Station, the parking lot and approximately 21,800 square feet of new driveway/access road will involve land disturbance of over one acre, (43,560 square feet) the project sponsor is required to obtain a State Pollutant Discharge Elimination System General Permit (GP-02-01) for Stormwater Discharge from Construction Activities. A Notice of Intent (NOI) is required to be sent to NYSDEC, Bureau of Water Permits, 625 Broadway, Albany, New York 12233-3505, telephone: 518-402-8111 and approved before construction commences. The General Permit GP-02-01 and NOI form are available on the Departments website at www.dec.state.ny.us. The General Permit requires the project sponsor and all contractors and subcontractors to control stormwater runoff according the Stormwater Pollution Prevention Plan (SWPPP) which is stated on page 3-11 of the Draft EA to be currently in place. A copy of the NOI form is enclosed with this letter.

Also recognize that the US Department of the Army, Corps of Engineers (U.S. Army Engineer District, Buffalo, 1776 Niagara Street, Buffalo, New York 14207-3199, Attn: Regulatory Branch) may require that this Department issue Water Quality Certification pursuant to Section 401 of the Federal Water Pollution Control Act and 6NYCRR Section 608.9, if construction involves fill in any waters of the United States, including Federally regulated wetlands. However, the Water Quality Certification issued by Chief Permit Administrator, Mr. William Adriance, on March 15, 2002 for the existing Nationwide Permit Program may cover the proposed work.

If you have any questions regarding these comments, please contact Mr. Jeffrey Dietz or me at 716-851-7165.

Respectfully,

David S. Denk
Deputy Permit Administrator

JED:jaf

cc: Mr. William Smythe, Region 9 Division of Water
U.S. Department of the Army, Corps of Engineers, Buffalo District Office
Mr. Dermott Smyth, Department of Air Force; Attn: Mr. James Mathews

Notice of Intent ("NOI")

New York State Department of Environmental Conservation

Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NOTICE OF INTENT for Stormwater Discharges Associated with Construction Activity UNDER SPDES GENERAL PERMIT #GP-02-01

NYR __ __ __ __ __ __
(for DEC use only)

IMPORTANT: **All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this general permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to completing and submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.**

Section I: Applicant/Activity Information

1. Owner/Operator Name:			
2a. Mailing Address:	2b. City	2c. State	2d. Zip
3. Contact Person: 3a. First Name: 3b. Last Name:	3c. Phone:	3d. E-mail:	
4a. Site/Project Name:		4b. Existing use of the site:	
5a. Street Address:	5b. City:	State: NY	5c. Zip
6. County:	7. Site Location: 7a. X Coordinates:_____ 7b. Y coordinates:_____		

Section II: Disturbance Activity/Discharge Characteristics

8. Future use of the site:	9. Duration of disturbance activity: from 9a. ___/___/_____ to 9b. ___/___/_____
10. Total site acreage: (acres)	11. Total amount of disturbed area of overall plan of development or sale: (acres)
12. Soil (Hydrologic Soil Group):	13. What is the maximum slope of disturbed area: %
14. What is the percentage of impervious area of the site? 14a. before commencement of the project % 14b. after completion of the project %	
15. Will there be permanent stormwater management practices? ☐ yes ☐no	16. Is this a phased project? ☐ yes ☐ no

Section III: Receiving System(s)

17. Does any part of the project lie within a regulated 100-year flood plain? ☐yes ☐no
18. Does the site/activity lie within the boundaries of the New York City watershed? ☐ yes ☐ no
19. Does runoff from site enter a storm sewer or ditch maintained by a local, Federal or State governmental unit (MS4)? ☐ yes ☐ no
If the answer to 19 is no, skip to question 20.
19a. Provide the name of the government owning the storm sewer system:_____
19b. Is the MS4 a "regulated MS4" as defined under 40 CFR Section 122.32? ☐ yes ☐ no ☐ don't know
19c. Does the MS4 have a SPDES permit for their storm sewer system? ☐ yes ☐ no ☐ don't know
19d. Is the runoff from the site tributary to a Combined Sewer Overflow (CSO)? ☐ yes ☐ no
20. What is the name of the nearest surface water body into which the runoff will enter?:_____
21. Does the runoff discharge to a receiving water identified as 303(d) listed segment ☐, or "TMDL" water ☐, or neither ☐?

Section IV: Stormwater Pollution Prevention Plan:

22. What components are required for the SWPPP? (Consult the SWPPP and Stormwater Permit Process flow chart and check all that apply): 22a. ☐ Erosion and Sediment Control Plan 22b. ☐ Water Quality and Quantity Controls

23. Is the Construction Sequence Schedule for the planned management practices prepared? ☐ yes ☐ no

Will the Stormwater Pollution Prevention Plan be in conformance with:
24a. local government requirements? ☐ yes ☐ no 24b. NYSDEC requirements? ☐ yes ☐ no
If the answer to 24b. is yes, skip to Section VI.

Section V - Supplemental Information (only if you answered "no" to question 24b)

25. **Before submitting this NOI, you must have your SWPPP certified by a licensed Professional.**
This certification must state that the SWPPP has been developed in a manner which will enssure compliance with water quality standards and with the substantive intent of this permit (see general permit for additional information).
Is your plan certified by a licensed Professional? ☐ yes ☐ no

- Do not submit your SWPPP to DEC unless requested.
- A copy of your SWPPP must be submitted to the local jurisdiction(s) as required under Part III, subsection B.2 (also see question #29 below).
- State each deviation from the Department's Technical Standards, reasons supporting each deviation request and an analysis of the water quality impacts in your SWPPP.
- Use Section VII below to summarize the justification statement in one paragraph.
- Allow sixty (60) days from the receipt of your completed application for permit coverage to provide DEC an opportunity to review the application and supporting information.

Section VI - Reviews and Approvals

Has your SWPPP been reviewed by: 26a. ☐ local Soil and Water Conservation District 26b. ☐ Professional Engineer
26c. ☐ Certified Professional Erosion Control Specialist 26d. ☐ Licensed Landscape Architect. 26e. ☐ None

27. Are there other DEC permits required or already obtained for this project? ☐ yes ☐ no
28. If the answer to 27 is no, skip to question 29.
28a. If this NOI is submitted for the purpose of continuing previous coverage under the general permit for stormwater runoff from construction activities (GP-93-06), please indicate the SPDES reference number assigned under GP-93-06: NYR1_____
28b. If there is another SPDES permit, please indicate the permit number: NY _____
28c. If there are other DEC permits, please provide one of the permit numbers: _____

29. Has a copy of your SWPPP been submitted to the governing jurisdiction as required by the permit? ☐ yes ☐ no

Section VII - Details (use this space, maximum 100 words or 600 characters, to further explain answers where necessary)

Section VIII - Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I also certify under penalty of law that this document and the corresponding documents were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction. and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

30a. Printed Name:	30b. Title/Position:	30c. Phone:
Signature:	30d. E-mail:	30e. Date:

Page designer: Jocelyn Delmar

PUBLIC NOTICE

Notice of Availability
Draft FONSI/FONPA and Environmental Assessment of Construction of a Fire/Crash Rescue Station at Niagara Falls Air Reserve Station, New York

Niagara Falls ARS, New York- An Environmental Assessment (EA) on the Proposed Construction of a Fire/Crash Rescue Station at Niagara Falls Air Reserve Station (ARS), New York has been prepared. The Air Force Reserve Command is proposing to issue a Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) based on this EA. The analysis considered potential effects of the Proposed Action and the No Action Alternative on eleven resource areas: noise, land use, air quality, safety, geological resources, cultural resources, water resources, biological resources, socioeconomics and environmental justice, infrastructure, and hazardous materials and waste. The results, as found in the EA, show that the affected environment would not be significantly impacted by the proposed Fire/Crash Rescue Station construction activities.

A small portion of the proposed Fire/Crash Rescue Station and access road would be within a 100-year floodplain. Under the President's Executive Order 11988, *Floodplain Management*, the Air Force is required to review the project for possible alternative solutions to the proposed action. Alternatives considered included other locations on the Installation and taking no action. The Air Force considered locating the new facility outside the 100-year floodplain, but found that the proposed location was the only practicable alternative to meet the response time requirements of Department of Defense Instruction 6055.6, *DOD Fire and Emergency Services Program*. Finally, the Air Force considered taking no action but a new Fire/Crash Rescue Station is needed to meet the requirements of Air Force Handbook 32-1084, *Civil Engineering, Facility Requirements*. The Fire/Crash Rescue Station will be designed to minimize impacts to the floodplain, and so that operations would not be adversely affected by a 100-year flood. Therefore, a FONSI/FONPA is appropriate for this action. An Environmental Impact Statement should not be necessary to implement the Proposed Action.

A copy of the Draft FONSI/FONPA and EA showing the analysis are available for review at Niagara Falls Public Library, Earl W. Brydges Building, 1425 Main St. Niagara Falls, NY, 14305. Public comments on the Draft FONSI/FONPA and EA will be accepted until 1 March 2006. Written comments and inquiries on the Draft FONSI/FONPA and EA should be directed to: 914th AW Office of Public Affairs, 2720 Kirkbridge Drive, Niagara Falls ARS, NY, 14304-5001. Or call 716-236-2136.

APPENDIX C

AIR CONFORMITY ANALYSIS

Emissions Estimates for EA of Proposed Fire/Crash Rescue Station at Niagara Falls ARS, NY

Summary Summarizes total emissions by calendar year. (this worksheet)
Pages C-1, C-2, and C-3

Combustion Estimates emissions from non-road equipment exhaust as well as painting. (one worksheet for each alternative)
Pages C-4, C-5, C-6, and C-7 for the Proposed Action; pages C-12, C-13, C-14, and C-15 for the Alternative Location;
and pages C-20, C-21, C-22, and C-23 for the Expansion & Renovation Alternative

Fugitive Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust (one worksheet for each alternative)
Pages C-8, C-9, C-10 for the Proposed Action; pages C-16, C-17, and C-18 for the Alternative Location;
and pages C-24, C-25, and C-26 for the Expansion & Renovation Alternative

Grading Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions (one worksheet for each alternative)
Page C-11 for the Proposed Action; page C-19 for the Alternative Location; and page C-27 for the Expansion & Renovation Alternative

		NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
Proposed Action	Combustion	8.46	1.44	10.22	0.24	0.28
(one table for each	Fugitive Dust					1.59
calendar year)	TOTAL Proposed Action	8.46	1.44	10.22	0.24	1.87

Since future year budgets were not readily available, actual 1999 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

Niagara Frontier Intrastate Air Quality Control Region (NFAQCR)

	Point and Area Sources Combined				
Year	NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
1999	67,345	68,035	440,085	80,811	40,715

Source: USEPA-AirData NET Tier Report (http://www.epa.gov/air/data/emcatrep.html?st~NY~New%20York). Site visited on 03/10/05

Determination Significance (Significance Threshold = 10%)
(one table for each year)

	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
Minimum -1999	67,345	68,035	440,085	80,811	40,715
Proposed Action	8.46	1.44	10.22	0.24	1.87
Proposed Action %	**0.0126%**	**0.0021%**	**0.0023%**	**0.0003%**	**0.0046%**

Fire/Crash Rescue Station at Niagara Falls ARS

Construction Combustion Emissions for Proposed Action
Combustion Emissions of VOC, NOx, SO2, CO and PM10 Due to Construction

Includes:

1	100% of Building Construction	33,340	ft^2	0.77	acres
2	100% of Paving (33,340 ft^2 for building and 21,800 ft^2 for parking)	55,140	ft^2	1.27	acres

Total Building Construction Area:	33,340 ft^2	(1)	
Total Demolished Area:	0 ft^2		
Total Paved Area:	55,140 ft^2	(2)	
Total Disturbed Area:	55,140 ft^2	(2)	
Construction Duration:	1.00 year(s)		
Annual Construction Activity:	230 days/yr	(assume 230 days/year unless project-specific data known)	

Summary of Input Parameters

	Total Area (ft2)	Total Area (acres)	Total Days	
Grading:	55,140	1.27	2	(from "Grading" worksheet)
Paving:	55,140	1.27	208	
Demolition:	0	0.00	0	
Building Construction:	33,340	0.77	208	
Architectural Coating	33,340	0.77	20	(per the SMAQMD "Air Quality of Thresholds of Significance", 1994 version)

NOTE: As a worst case estimate, paving, demolition, and building construction days are each assumed to be the total number of construction days minus grading and coating days; enter days for each activity if known, and adjust unknown activity days accordingly

Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment, SMAQMD, 2004

Emission factors are taken from Table 3-2 for CY 2005. Assumptions regarding the type and number of equipment are from Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Bulldozer	1	29.40	3.66	25.09	0.59	1.17

Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	3	60.51	9.02	70.69	1.21	2.03

Paving

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Roller	1	5.01	0.86	7.34	0.10	0.14
Total per 10 acres of activity	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Haul Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equipment[d]	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Stationary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industrial Saw	1	17.02	2.12	14.52	0.34	0.68
Welder	1	4.48	0.56	3.83	0.09	0.18
Mobile (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Forklift	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Total per 10 acres of activity	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activitiy, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be

three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not provide SO_2 emission factors. For this worksheet, SO_2 emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO_2 factor was found to be approximately 0.04 times the NOx emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emission factor for all other equipment (based on AP-42, Table 3.4-1)

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emission Factors (lb/day)				
		NOx	VOC	CO	SO2**	PM10
Grading Equipment	1	60.51	9.02	70.69	1.21	2.03
Paving Equipment	1	12.94	2.23	18.96	0.26	0.36
Demolition Equipment	1	28.75	4.95	42.14	0.58	0.80
Building Construction	1	67.16	9.98	78.03	2.02	2.27
Air Compressor for Architectural Coating	1	6.83	0.85	5.82	0.14	0.27
Architectural Coating**			14.88			

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Annual Emissions by Activity (lbs/yr)

	NOx	VOC	CO	SO2	PM10
Grading Equipment	121.0	18.0	141.4	2.4	4.1
Paving	2691.5	463.8	3943.7	53.8	74.9
Demolition	0.0	0.0	0.0	0.0	0.0
Building Construction	13969.3	2075.8	16230.2	420.1	472.2
Architectural Coatings	136.6	314.6	116.4	2.7	5.4
Total Emissions (lbs/yr):	**16918.4**	**2872.3**	**20431.7**	**479.1**	**556.5**

Results: Daily and Annual Emission Rates

	NOx	VOC	CO	SO2	PM10
Emissions, average lbs/day	16918.42	2872.35	20431.70	479.10	556.50
Emissions, tons/yr	8.46	1.44	10.22	0.24	0.28

Fire/Crash Rescue Station at Niagara Falls ARS

Construction Fugitive Dust Emissions for Proposed Action

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	1.27	acres/yr	(From "Combustion" worksheet)
Grading days/yr:	1.38	days/yr	(From "Grading" worksheet)
Exposed days/yr:	90	assumed days/yr graded area is exposed	
Grading Hours/day:	8	hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)	
Soil percent silt, s:	8.5	%	(mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	60	%	(NOAA 2005 http://www.cpc.noaa.gov/products/soilmst/w.html)
Annual rainfall days, p:	150	days/yr rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)	
Wind speed > 12 mph %, I:	40	% ave. wind speed near NFARS in Buffalo, NY (ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/new_york/buffalo/)	
Fraction of TSP, J:	0.5	per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993, p. A9-99	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	8	ft	
Qty construction vehicles:	3.00	vehicles	(From "Grading" worksheet)
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	1.5	lb/VMT	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor a	0.9	(dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor b	0.45	(dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
Mean Vehicle Weight W	40	tons	assumed for aggregate trucks

TSP - Total Suspended Particulate
VMT - Vehicle Miles Traveled

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	8.7	hr/acre	
Bulldozer mileage per acre	1	VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	15	VMT/day	
Construction VMT per acre	16.4	VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-1, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-1,
Vehicle Traffic (unpaved roads)	$[(k(s/12)^{a}(W/3)^{b})]\ [(365\text{-}P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 10/98 and Section 13.2 dated 12/03

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.06 lbs/hr	8.7 hr/acre	0.50 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.80 lbs/acre
Vehicle Traffic (unpaved roads)	2.08 lbs/VMT	16.4 VMT/acre	34.10 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993.

Soil Piles EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

Soil Piles EF = 11.8 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
Soil Piles EF = 1.18 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

		Graded	Exposed	Emissions	Emissions

Source	Emission Factor	Acres/yr	days/yr	lbs/yr	tons/yr
Bulldozing	0.50 lbs/acre	1.27	NA	1	0.00
Grading	0.80 lbs/acre	1.27	NA	1	0.00
Vehicle Traffic	34.10 lbs/acre	1.27	NA	43	0.02
Erosion of Soil Piles	1.18 lbs/acre/day	1.27	90	134	0.07
Erosion of Graded Surface	26.40 lbs/acre/day	1.27	90	3,008	1.50
TOTAL				3,187	1.59

Soil Disturbance EF: 35.40 lbs/acre
Wind Erosion EF: 27.58 lbs/acre/day

Back calculate to get EF: 1818.96 lbs/acre/grading day

Fire/Crash Rescue Station at Niagara Falls ARS

Construction (Grading) Schedule for Proposed Action

Estimate of time required to grade a specified area.

Input Parameters
Construction area: 1.27 acres/yr (from "Combustion" Worksheet)
Qty Equipment: 3.00 (calculated based on acres disturbed, assuming that up to three machines can effectively work on a 25 acre area, with a minimum of three machines for any job, regardless of area graded)

Assumptions.
Terrain is mostly flat.
An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
200 hp bulldozers are used for site clearing.
300 hp bulldozers are used for stripping, excavation, and backfill.
Vibratory drum rollers are used for compacting.
Stripping, Excavation, Backfill and Compaction require an average of two passes each.
Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	1.27	2.11
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.27	0.62
022 242 5220	Excavation	Bulk, open site, common earth, 150' hau	800	cu. yd/day	0.99	1.01	0.63	0.64
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.63	0.26
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.27	0.52
TOTAL								4.15

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 4.15
Qty Equipment: 3.00
Grading days/yr: 1.38

Fire/Crash Rescue Station at Niagara Falls ARS

Niagara Frontier Intrastate Air Quality Control Region (NFAQCR)

			Area Source Emissions						Point Source Emissions					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	NY	Erie Co	341,539	35,772	26,305	9,474	9,825	51,075	3,724	12,197	3,647	3,213	53,925	798
2	NY	Niagara Co	83,348	8,277	9,609	2,873	2,974	15,829	11,474	11,099	1,154	936	14,087	333
Grand Total			424,887	44,049	35,914	12,347	12,799	66,904	15,198	23,296	4,801	4,149	68,012	1,131

SOURCE:
http://www.epa.gov/air/data/emcatrep.html?st~NY~New%20York
USEPA - AirData NET Tier Report
*Net Air pollution sources (area and point) in tons per year (1999)
Site visited on March 10, 2005

APPENDIX D

EXCERPT FROM AFH 32-1084, *FACILITY REQUIREMENT*

support space is provided in a detached structure or detached module, the facility is reported as category code 740-459, Transient Lodging Support Building.

14.16.5 The scope used for programming, budgeting, and design is limited by very specific financial considerations and by unquestioned market need as documented by a professional, in-depth market survey. The scope is also influenced by the Services NAF construction prioritization system which encourages economy in scope and composite facilities. The scope may also be influenced by needs assessment studies. Contact MAJCOM Director of Services for current criteria and guidelines.

Chapter 15

CATEGORY GROUP 73 PERSONNEL SUPPORT

Section A--Fire Stations

15.1. Category Code 730-142, Fire Station. The facility houses the fire protection apparatus, equipment, operating supplies/agents, and administrative/maintenance/operations personnel of the base fire department.

15.1.1. **Basic Fire Station.** The basic fire station consists of an apparatus room, general purpose/dayrooms, training classroom, kitchen/dining area, sleeping quarters, physical conditioning room, personnel locker room/space, watch room, equipment maintenance area (including breathing apparatus servicing), fire fighting agents and operating supply storage, and station office.

15.1.2. **Additional Components.** These functional components are normally found in only one fire station on a base.

15.1.2.1. **Fire Department Headquarters:** Administrative functions (chief, deputy chief, assistant chiefs of operations/training, administrative clerk(s), visitor reception, and training equipment storage.)

15.1.2.2. **Fire Prevention:** Assistant chief of prevention, fire prevention specialists, and fire prevention education materials storage.

15.1.2.3. **Reserve Fire Department:** Administrative functions (reserve chief and assistant chiefs) and personnel locker room/space.

15.1.2.4. **Alarm/Communications Center:** Alarm/communications operations room, communication/alarm/phone circuit room/area, special power and environmental requirements.

15.1.2.5. **Fire extinguisher maintenance and repair.**

15.1.2.6. **Vehicle maintenance office/parts/tools storage.**

15.1.2.7. **Breathing apparatus maintenance.**

15.1.2.8. **Fire department bench/shop storage.**

15.1.3. **Special Features.**

15.1.3.1. **Automatic emergency generator capability.**

15.1.3.2. Separate HVAC systems for fire alarm/communication center and the other areas of the station. Separate radiant tube heating system for the apparatus bays.

15.1.3.3. Pre-wiring for radio systems, data automation systems, alarm receiving equipment, internal communications system, and telephone system.

15.1.3.4. Low pressure air compressor, air storage tanks, and distribution system in the apparatus bays.

15.1.3.5. Complete wet pipe sprinkler fire protection system plus smoke detection in the sleeping areas.

15.1.4. **Scope Requirements.** The space criteria presented below provides an example large and small fire station. These examples represent typical local operations space requirements. Each base (MAJCOM) should develop its own space criteria and design solution appropriate to local functions, operating patterns, size requirements, site constraints, and desired architectural character. The example large and small fire stations are extracted from the ACC/AMC Fire Station Facilities Design Guide.

15.1.4.1. **Example Large Fire Station.** The large fire station typically is the fire department's primary facility. For this example the total personnel is 63, as shown in Tables 15.1 and 15.2, comprised of a maximum of 13 people on an 8-hour shift and a maximum of 25 people on each of two 24-hour shifts. This total is calculated by multiplying the 24-hour manpower requirement by the Air Force fire protection manpower factor of 2.58. The building would house twelve vehicles requiring six drive-through stalls. Table 15.3 shows space criteria for the example large fire station.

Table 15.1. Example Large Fire Station Administration Personnel.

Personnel	Quantity
Fire Chief	1
Assistant Fire Chiefs	4
Alarm Communications	
Center Operators	5
Technical Services	2
Administrative Personnel	1
Total	13

Table 15.2. Example Large Fire Station Fire Fighting Personnel.

Vehicle No.	No. on Crew	Job Description
P-2	3	Crew Chief, Driver, Lineman
P-2	3	Crew Chief, Driver, Lineman
P-10	3	Crew Chief, Driver, Crew Member
P-15	3	Crew Chief, Driver, Lineman
P-19	3	Crew Chief, Driver, Lineman
P-22	4	Crew Chief, Driver, 2 Firefighters
Total Number of Crew	19 x 2.58 = 50 (to obtain total number of fire fighters for shifts)	

Table 15.3. Example Large Fire Station Space Criteria.

Component	Net Area	
	m^2	sf
Alarm Communications Center		
Communications Control Room	37	400
Kitchenette	7	70
Private Rest Room	7	80
Emergency Response Center	30	320
Telecommunications/Computer Room	19	200
Subtotal Alarm Communications Center:	**100**	**1,070**
Apparatus Room		
Six Bays/Twelve Vehicles	909	9,780
Subtotal Apparatus Room:	**909**	**9,780**

Table 15.3. Continued.

Component	Net Area	
	m^2	sf
Training Facilities		
Training Room	93	1,000
Assistant Chief for Training Office	12	130
Audiovisual Storage	22	240
Fire Fighting Computer Simulation Model	9	100
Testing/Training	9	100
Physical Fitness	70	750
Subtotal Training Facilities:	**215**	**2,320**
Living Quarters		
Private Bedrooms - 10.2 m^2 (110 sf) per bedroom	225	2,420
Personal Lockers	50	540
Physical Therapy Room	22	230
Rest Rooms/Showers	65	700
Laundry	24	260
Subtotal Living Quarters:	**386**	**4,150**
Recreation/Dining		
Television Room	53	570
Day Room	45	480
Vending	5	50
Kitchen	19	200
Kitchen Storage	5	50
Serving Line	9	100
Dining Area	33	360
Subtotal Recreation/Dining:	**169**	**1,810**
Administration		
Vestibule	7	80
Entrance/Reception	35	380
Fire Chief Office	21	230
Fire Chief Conference Room	12	130
Fire Chief Bedroom	12	130
Deputy Fire Chief Office	12	130
Assistant Chief for Operations Office	12	130
Assistant Chief for Operations Bedroom	15	160
Rest Room	14	150
Station Captain Office/Bedroom	16	170
Assistant Chief for Technical Services' Office	12	130
Technical Services Staff Office	12	130
Technical Services Aids and Storage	5	50
Administration Storage	3	30
Administration Open Office	14	150
Copy	5	50
Coats	3	30
Subtotal Administration Areas:	**210**	**2,260**
Maintenance, Repair, Storage and Support		
Vehicle Maintenance Office	14	150
Vehicle Maintenance Parts and Tools	40	430

Table 15.3. Continued.

Component	Net Area	
	m^2	sf
Fire Fighting Agent Storage	28	300
Hose Storage and Drying	23	250
Fire Extinguisher Maintenance/Repair and Storage	61	660
SCBA Maintenance and Repair	48	520
Protective Clothing Lockers	32	340
Protective Clothing Laundry	56	600
Disinfecting Facilities (include with the protective clothing laundry room)	14	150
Outdoor Tire Storage[1]	(21)	(220)
Outdoor Fire Extinguisher Storage[1]	(46)	(500)
Outdoor Mechanical Equipment Enclosure[1]	(47)	(510)
General Supply	41	440
Medical Storage	20	220
Janitor Closet	5	50
Mechanical/Electrical/Telephone/Compressor Room	34	360
Public and Private Corridors (25% excluding Apparatus Room)	355	3,820
Subtotal Maintenance, Repair, Storage and Support:	**771**	**8,290**
AFRES/ANG		
AFRES/ANG Fire Chief Office[2]	21	230
AFRES/ANG Assistant Fire Chief Office[2]	12	130
AFRES/ANG Protective Clothing Lockers[2]	28	300
Subtotal AFRES/ANG:	**61**	**660**
Total Large Fire Station	**2,821**	**30,340**

1. Outdoor area not included in total.
2. Optional if funded by AFRES/ANG.

15.1.4.2. **Example Small Fire Station.** Small fire stations are required when vehicle response time cannot be achieved from a large fire station. For this example the total number of personnel at the fire station is 11, as shown at Table 15.4. This includes four people on each of two 24-hour shifts. This figure is calculated by multiplying the 24-hour manpower requirement by the Air Force fire protection manpower factor of 2.58. The building would house two vehicles that require two drive-through stalls. Table 15.5 shows space criteria for the example small fire station.

15.1.4.3. Other items (some of which are noted above) which must be considered in programming a fire station include; food service food preparation areas, special survivability requirements for the communications center, outside storage for flightline extinguishers, access pavements, visitor and personnel vehicles parking, emergency power, supporting utilities, and landscaping.

Table 15.4. Example Small Fire Station Fire Fighting Personnel.

Vehicle No.	No. on Crew	Job Description
P-22	4	Chief, Driver, 2 Firefighters
Total Number of Crew	4 x 2.58 = 11 (to obtain total number of fire fighters for shifts)	

Table 15.5. Example Small Fire Station Space Criteria.

Component	Net Area	
	m^2	sf
Alarm Communications Center		
Communications Control Room	19	200
Private Rest Room	6	60
Telecommunications/Computer Room	5	50
Subtotal Alarm Communications Center:	**30**	**310**
Apparatus Room		
Two Bays/Two Vehicles	170	1,830
Subtotal Apparatus Room:	**170**	**1,830**
Training Facilities		
Training Room included in Day Room	0	0
Physical Fitness	20.5	220
Subtotal Training Facilities:	**20.5**	**220**
Living Quarters		
Private Bedrooms - 10.2 m^2 (110 sf) per bedroom	41	440
Station Captain's Bedroom	12	130
Personal Lockers	21	230
Rest Rooms/Showers	28	300
Laundry	9	100
Subtotal Living Quarters:	**111**	**1,200**
Recreation/Dining		
Television Room	24	260
Day Room/Training Room	24	260
Vending	2	20
Kitchen	15	160
Kitchen Storage	5	50
Serving Line	9	100
Dining Area	14	150
Subtotal Recreation/Dining:	**93**	**1,000**
Administration		
Vestibule	5	60
Entrance/Reception	19	200
Station Chief's Office	12	130
Administration Storage	4	40
Training Storage	5	60
Coats	1	10
Subtotal Administration Areas:	**46**	**500**
Maintenance, Repair, Storage and Support		
Fire Fighting Agent Storage, Hose Storage & Drying	17	180
Protective Clothing Lockers	9	100
Protective Clothing Laundry	11	120
General Supply	18	190
Janitor's Closet	3	30
Supply Closet	2	20
Mechanical/Electrical/Telephone/Compressor Room	14	150

Table 15.5. Continued.

Component	Net Area	
	m^2	sf
Public and Private Corridors (25% excluding Apparatus Room)	94	970
Subtotal Maintenance, Repair, Storage and Support:	**168**	**1,760**
Total Small Fire Station	**638**	**6,820**

15.1.4.4. **Apparatus Space Primary Design Considerations.**

15.1.4.4.1. **Use and Performance:** Space for parking fire protection vehicles is sometimes used for performing maintenance on vehicles. At some facilities, the vehicles back into the bays. Provide interior stall space for emergency vehicles. Provide drive-through bays for crash and structural trucks if new construction. Aircraft rescue and fire fighting vehicles (ARFF) face the flight line directly behind the overhead doors. Structural fire fighting vehicles as well as other vehicles are parked in spaces behind ARFF vehicles facing out the structural side of the drive-through bays. Provide a bay for an aerial ladder vehicle, when authorized. One drive-through apparatus bay is authorized for the fire chief's and assistant chief's vehicles.

15.1.4.4.2. **Space Organization and Charter:** Provide exits from the apparatus room directly to the outside, in accordance with the applicable building codes. Design the apparatus room to include a drive-through washing and maintenance bay. Separate this maintenance bay from the other bays.

15.1.4.4.3. **Relationship Between Spaces:** The apparatus room should be located near the living quarters. Locate maintenance shop areas and fire fighting agent storage adjacent to the apparatus room.

15.1.4.5. **Apparatus Room - Large Fire Station:**

15.1.4.5.1. **Size and Critical Dimensions.** Refer to Table 15.6 for space size. A minimum of six drive-through bays are required in the large fire station. Provide at least one drive through vehicle bay with the required overhead door size and clear ceiling height to accommodate the P-15 vehicle where assigned. Design all other drive-through bays to accommodate P-23 vehicles. Design drive-through bays long enough for vehicles to park back-to-back. Provide the following minimum dimensions at each vehicle: 1.8 m (6 ft) between vehicles and the fire station structure; 2.1 m (7 ft) between vehicles (side to side); 2.4 m (8 ft) between vehicles (rear to rear); 1.5 m (5 ft) between vehicles and overhead doors. Ceiling height should mean the clear height below any structural member, light fixtures, heating equipment, and overhead doors in open position. For fire stations housing both aircraft rescue fire fighting (ARFF) vehicles and structural fire fighting vehicles, use the door size and the minimum clear ceiling height for ARFF vehicles.

15.1.4.5.2. **Furnishings and Equipment:** Fire fighting vehicles are authorized under Table of Allowances 012. This should be validated against projected vehicle requirements. Provide heavy-duty insulated apparatus room doors at all locations subject to low temperatures. Equipment doors with a signaling system to indicate when they are fully raised. The red and green indicators should be located on the drivers' sides, mounted 1.8 m (6 ft) above finished floor. Doors may be equipped with radio-operated closing devices activated from the vehicles. Equipment doors with automatic reverse and/or electric eye devices that activate when the door contacts an obstruction. Do not provide man-doors in the overhead doors. Provide manual means to open overhead doors in case of power failure.

15.1.4.5.3. **Technical Requirements:** Design concrete floors to support vehicle weights shown in Table 15.6. Provide an emergency eye wash fountain and shower. Provide a floor-operated mop sink. Provide an indoor mop hanging rack in vehicle washing and maintenance bay. Provide minimum 80 mm (3-inch) diameter water service with 65 mm (2 1/2-inch) diameter National Standard Threads ball-valved outlet to each vehicle. Locate electrical outlets 0.91m (3 ft) above the floor. Provide a minimum of one standard hot and cold water garden hose bib for every two vehicle bays. Provide low pressure compressed air system on self-retracting lines at each vehicle space for servicing vehicle tires, brakes, and operating air tools. This compressor is shared with the extinguisher maintenance shop. Refer to extinguisher maintenance area. Provide self retracting electric drop cords between vehicle spaces for drop light and battery hook up. Utility systems should include sufficient redundancy to allow for equipment maintenance and contingencies because the fire station is

operational 24 hours a day. Heat the apparatus room with a radient tube-type heating system Natural gas or electric). Hot water heating is an option at bases where a central system plant is used to heat building. Provide for overhead ventilation of vehicle exhaust from apparatus room. Provide instant start fluorescent lighting in the apparatus room for safety purposes. Provide a non-skid apparatus room floor impervious to fuels (diesel fuel, JP-4, and JP-8), fire fighting chemicals, and various automotive lubricants. The floor surface should not be affected by the weight of the vehicle or subject to it being pulled by the tires. Place a trench drain parallel to the centerline of each vehicle. All apparatus room drains should have a fine grate cover and be connected to an approved oil/water separator prior to interconnection to the sanitary sewer. Floors should be sloped to the trench drains.

Table 15.6. Fire Vehicle Criteria.

Vehicle Number	Vehicle Type	No. on Crew	Weight		Length		Width		Height	
			kg	lbs	m	ft-in	m	ft-in	m	ft-in
P-2	ARFF	3	30,300	66,800	10.16	33-4	3.05	10-0	3.81	12-6
P-3	ARFF	3	21,300	46,600	10.16	33-4	3.05	10-0	3.30	10-10
P-10	Rescue Truck	3	3,630	8,000	9.65	31-8	2.84	9-4	3.30	10-10
P-15	ARFF	3	59,400	130,860	13.77	45-2	3.05	10-0	4.19	13-9
P-18	Water Tank	C.M.[1]	24,500	54,000	9.65	31-8	2.84	9-4	3.30	10-10
P-19	ARFF	3	14,700	32,500	10.16	33-4	3.05	10-0	3.81	12-6
P-20	ARFF	C.M.[1]	4,940	10,900	10.16	33-4	3.25	10-8	3.81	12-6
P-21	Ladder Truck	C.M.[1]	31,200	68,700	14.73	48-4	2.84	9-4	3.66	12-0
P-22	Pumper	4	14,700	32,300	9.65	31-8	2.84	9-4	3.30	10-10
P-23	ARFF	3	35,300	77,900	10.16	33-4	3.05	10-0	3.81	12-6
P-23 EEAD[2]	ARFF	3	36,700	80,900	10.16	33-4	3.05	10-0	5.03	16-6
P-24		4	16,600	36,700	9.65	31-8	2.84	9-4	3.30	10-10
P-26	Water Tanker	C.M.[1]	31,800	70,000	14.48	47-6	2.84	9-4	3.66	12-0
P-27	Mini Pumper	2	5,000	11,000	9.65	31-8	2.84	9-4	3.81	12-6

1. C.M. = cross manned
2. EAAD - elevated agent application device

15.1.4.6. **Apparatus Room - Small Fire Station:**

15.1.4.6.1. **Size and critical dimensions:** Stations that normally house a single fire vehicle should be designed for a minimum of two drive-through vehicle bays. Refer to large fire station apparatus room for additional notes on size and critical dimensions.

15.1.4.6.2. **Furnishings and equipment:** Refer to large fire station apparatus room for additional notes.

15.1.4.6.3. **Technical requirements:** Refer to large fire station apparatus room for additional notes.

Table 15.7. Space Allowances for Bread and Pastry Bakeries.

Number of Persons Served	Gross Area[1]				Rated Capacity for 8-hour Operations[2]		
	Bread Bakery		Pastry Bakery		Breads		Pastry
	m^2	sf	m^2	sf	Kilograms	Pounds	(Servings)
2,500			167	1,800			5,000
3,000	418	4,500			680	1,500	
5,000			274	2,950			10,000
8,400	483	5,200			1900	4,200	
10,000			325	3,500			20,000
16,800	762	8,200			3800	8,400	